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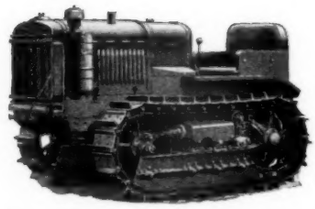

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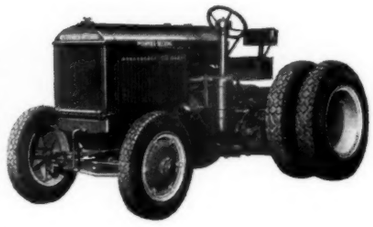

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Demand for Crude Oil May Force Higher Price; Premiums Are Being Offered in East Texas

By JAMES McINTYRE

THE Oklahoma Corporation Commission is of the opinion that selling crude oil at 25 cents per barrel constitutes economic waste under the provisions of the new Oklahoma conservation act, and has called a meeting for Friday, June 9, to listen to reasons why the prorated fields of Oklahoma should not be shut in pending the posting of crude prices that will give a profit to producers. The Commission will have to be shown. Its collective thought on the subject has been made known. The meeting which may take more than one day should be one of the most important yet held by the oil governing body of the state.

The big increase in production in Oklahoma City in the past week was caused in part by the belief that the Commission may act in accordance with its interpretation of the new law.

In East Texas, while another reduction in the average daily production of the field was recorded, it was reported early in this calendar week that the shipments of oil out of the field by pipe line and by tank car had again gone above the million-barrel per day mark. Recent proration tests in the field indicate a continued decline in bottom hole pressure, which is quite natural considering the tremendous drainage to which the field is being subjected. Crude oil stocks in the field are piling up while refiners in other sections are having trouble in obtaining sufficient crude oil for their daily needs. Some refiners in Oklahoma have petitioned the Corporation Commission for a higher allowable production in pools from which they desire to ship oil.

Some encouragement has been given to East Texas operators by the news that offers of from 5 cents to 12 cents per barrel are being made as premiums over the 25-cent price posted in the field, indicating that notwithstanding the immense production there is something awry with the distribution of the oil produced. Additional encouragement may be had from the reports from Texas that the Railroad Commission at its hearing on June 12 may cut production in East Texas below the 500,000-bbl. mark, which would undoubtedly result in a large percentage increase in the price of crude.

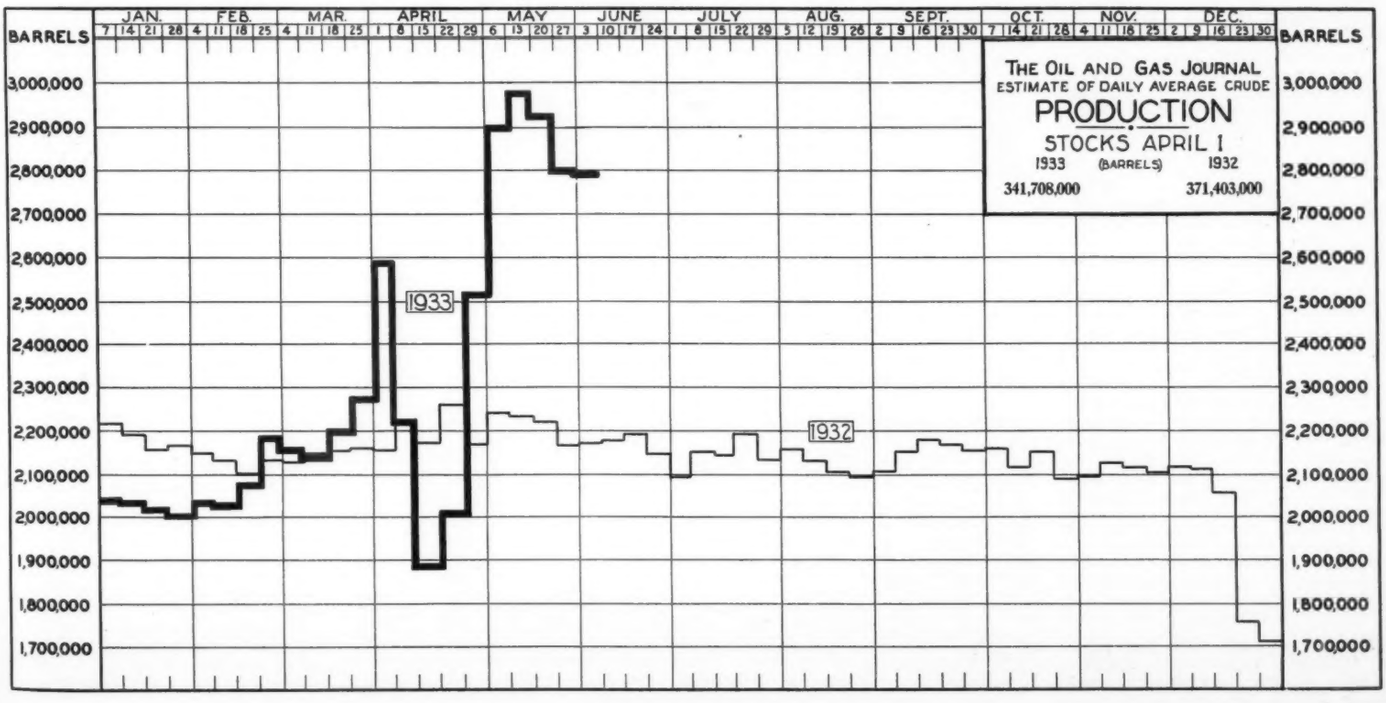
The situation in Washington is no clearer than it has been and the question of whether or not the industry is to have a dictator and the degree of authority which the Federal government is finally to exercise over the production and distribution of petroleum are still up in the air.

Crude Oil Production in the United States

Estimated daily average production for the week ending June 3, and a comparison with previous week and one year ago, follows:

	June 3	May 27	June 4, 1932
Oklahoma—			
Oklahoma City	141,181	90,400	74,145
Seminole-St. Louis	93,395	102,660	116,910
Remainder of State	183,995	185,325	216,480
Total Oklahoma	418,571	378,385	407,535
East Texas—			
Lathrop	388,415	415,625	129,240
Kilgore	289,945	295,750	109,395
Joiner	264,620	278,740	111,287
Total East Texas	942,980	990,115	349,922
West Texas	157,805	160,495	184,787
North Central Texas	63,895	67,653	74,052
Texas Panhandle	45,312	44,157	54,428
East Central Texas	58,587	58,345	56,819
Gulf Coast—Texas	195,735	192,994	109,615
Southwest Texas	51,222	51,510	59,635
Total State of Texas	1,515,536	1,565,269	889,258
Kansas	107,670	105,700	95,815
North Louisiana	25,105	26,405	29,100
Gulf Coast—Louisiana	42,439	41,443	34,725
Arkansas	29,875	29,930	34,030
Eastern Fields	105,200	104,500	118,000
Rocky Mountain area	72,340	71,450	81,442
California—			
Santa Fe Springs	53,750	54,000	60,500
Long Beach	76,500	75,000	76,000
Playa Del Rey	11,500	11,750	17,250
Elwood	13,250	13,250	14,250
Kettleman Hills	61,500	62,500	59,500
Remainder of State	261,000	267,500	252,500
Total California	477,500	484,000	480,000
Total United States	2,794,236	2,807,082	2,169,905

Decrease 12,846 Bbls. Daily.



Mid-Continent Refineries Will Run More Crude This Month Than Any Since November 1931

By W. T. ZIEGENHAIN

The combined schedules of all refineries in the Mid-Continent call for daily runs of 479,987 bbls. of crude during June. This represents an increase of 9,522 bbls. over May and is the highest since November, 1931. The greater share of the increase over last month is accounted for in East Texas, where refinery operations are being maintained at 74 per cent of plant capacity. In addition to this relatively high rate of operation, new small plants continue to be built. Within the past month six plants have been added to the list, bringing the total number in that area up to 44. Only two of these are shown as idle.

The North Central Texas plants, those in Arkansas and those in Kansas, have increased their total runs while reductions are shown in the schedules of the West Texas and Oklahoma groups.

East Texas Refineries

Within a period of only two years the East Texas refining area has built itself up from having a very few plants to a total of 44. The great majority of these are small skimming plants that have operated solely because local crude has been plentiful at exceptionally low prices. During the greater share of the past two years crude has been available in the field at prices much below that quoted by the larger pipe line companies.

This appears to be in the process of permanent alteration just at this time, however, and except where purchases are being made on contracts of long standing, crude is not available below the posted field price. For the first time since the early development of the field, local refiners are not only paying the regular field price but are paying a pipe line delivery charge. In a few instances they are paying a small premium for the crude. The only advantage these plants now hold over plants in other areas is that there continues to be plenty of oil available and this is due in turn to the high allowable established by the commission.

Because there is a strong possibility that a revision of the commission's order will be made June 12, and will likely call for a substantial reduction in the output of the field, a revision of the estimated runs might be necessary in many cases.

New plants to be added to the list in East Texas this month include the Bluebonnett Refining Co., a 200-bbl. skimming plant located at Kilgore, the plant of the Dutch Rose Refining Co. near Longview having a capacity of 100 bbls., the Foshee Refining Co.'s 500-bbl. plant at Gladewater, the Rocket Refining Co.'s 200-bbl. plant at Kilgore, the Union Refining Co.'s 300-bbl. plant at Camps Switch and the Upshur Refining Co.'s 300-bbl. plant at Gladewater.

Several changes have also come about in the past month in the names of the companies operating other plants there. The Arpana Refining Co. is now operating the plant at Arp formerly operated by the McMurray Refining Co., the Danciger Oil & Refining Co. has given its name to the plant formerly operated as the Petroleum Refractionating Co., and the Reinhart Refining Co. replaces the name of the Sabine Refining Co., which operated a plant at Gladewater.

Oklahoma

A crude shortage at a few points in Oklahoma account for the low schedule of runs. In June approximately 150,910 bbls. will be processed daily compared with 152,400 bbls. in May. Plants in the Oklahoma City area feel the effect of the crude shortage more than in other sections. However, much of the curtailing of runs in these plants is not due to an actual shortage of oil but a shortage at prices below that posted by the major buyers.

Mid-Continent Refinery Operations

Scheduled Average Daily Crude Runs

	1929	1930	1931	1932	1933
January	508,550	535,460	478,795	405,910	399,405
February	506,800	519,355	470,125	411,280	407,125
March	514,950	531,500	449,634	401,155	423,445
April	530,530	555,250	497,391	419,750	441,000
May	577,500	574,300	510,540	436,160	470,460
June	583,030	572,250	567,915	440,765	479,987
July	565,800	548,475	588,840	433,255	.....
August	555,250	526,400	590,545	427,710	.....
September	552,300	498,710	588,105	430,430	.....
October	544,720	518,800	472,190	401,995	.....
November	545,473	506,700	480,440	408,180	.....
December	540,630	478,360	456,525	416,275	.....

Operations by Districts

	June 1 Dy. crude capacity (bbls.)	June Dy. crude runs (bbls.)	May Dy. crude runs (bbls.)	June daily increase (bbls.)
Arkansas	44,000	20,400	18,200	2,200
Kansas	174,800	98,700	97,900	800
North Louisiana	41,000	25,050	25,050	.....
Oklahoma	312,900	150,910	152,400	*1,490
North Central Texas	230,250	80,230	76,370	3,860
West Texas	146,350	34,280	38,355	*4,075
East Texas	94,900	70,417	62,190	8,227
Total	1,044,200	479,987	470,465	9,522

*Decrease.

REFINERY OPERATIONS IN OKLAHOMA

(Plants which have been in operation during the past year)

Company and location—	Daily capacity	Aver. daily runs— June	May
Altitude Petroleum Corp. (J. H. Peacock Refining Co.), Oklahoma City	3,000	500	500
Anderson-Prichard Oil Corp., Cyril	6,000	4,000	4,000
Associated Petroleum Corp., Allen	3,000	(*)	(*)
Barnsdall Refineries, Inc., Barnsdall	6,000	3,500	3,500
Barnsdall Refineries, Inc., Okmulgee	10,000	3,300	4,000
Bell Oil & Gas Co., Grandfield	4,500	3,200	3,000
Black Gold Refining Co., Oklahoma City	1,500	1,200	800
Century Petroleum Co., Tulsa	500	(*)	(*)
Century Petroleum Co., Oklahoma City	2,500	1,200	1,100
Champlin Refining Co., Enid	16,000	6,000	6,500
Cole (L. S.) Refining Co., Oklahoma City	400	(*)	200
Columbia Oil Corp., Oklahoma City	3,500	(*)	(*)
Continental Oil Co., Sapulpa	10,000	(*)	(*)
Continental Oil Co., Ponca City	30,000	15,000	17,000
Crescent Refining Co., Holdenville	1,000	800	800
Cushing Refining & Gasoline Co., Blackwell	1,800	1,500	1,500
Cushing Refining & Gasoline Co., Cushing	3,500	2,200	2,500
Deep Rock Oil Corp., Cushing	10,000	7,500	9,000
Eason Oil Co., Enid	5,000	2,500	3,000
Empire Oil & Refining Co., Okmulgee	4,000	2,700	2,700
Empire Oil & Refining Co., Ponca City	12,000	8,000	7,100
Firestone Refining Co., Oklahoma City	200	(*)	500
Garber Refineries, Inc., and Omar Refining Co., Garber	3,500	(*)	(*)
Gem Refining Co., Oklahoma City	1,000	50	(*)
Globe Oil & Refining Co., Blackwell	7,500	6,000	6,500
Johnson Oil Refining Co., Cleveland	6,000	3,500	3,500
Major Oil Co., Oklahoma City	2,000	260	100
Mid-Continent Petroleum Corp., West Tulsa	40,000	19,000	19,000
Marathon Oil Co., Boynton	2,500	(*)	(*)
Marathon Oil Co., Bristow	5,000	(*)	(*)
Oklahoma City Refining Co., Oklahoma City	2,500	(*)	200
Phillips Petroleum Co., Okmulgee	6,000	4,500	4,500
Producers Oil Co., Bristow	2,500	1,000	1,000
Producers & Refiners Corp., West Tulsa	6,000	3,500	3,500
Pure Oil Co., Ardmore	5,000	4,000	1,200
Pure Oil Co., Muskogee	9,000	7,000	6,000
Rock Island Refining Co., Beckett	5,000	4,000	4,500
Sinclair Refining Co., Sand Springs	8,000	2,350	2,600
Sterling Refining Co., Oklahoma City	3,500	500	1,000
Sun Oil Co., Yale	5,000	3,500	3,500
Sunray Oil Co. (C. E. Wright, receiver), Allen	7,000	2,000	2,000
Sunshine Refining Co., Seminole	500	(*)	200
The Texas Co., West Tulsa	15,000	9,000	8,800
Texas Pacific Coal & Oil Co., Wynnewood	3,000	1,500	1,500
Tide Water Oil Co., Drumright	16,000	9,000	8,000
Western Oil Corp., Beckett	2,000	400	(*)
Wilcox Oil & Gas Co., Bristow	5,000	4,300	3,500
Wirt Franklin Petroleum Corp., Ardmore	4,000	2,100	2,200
Yale Oil Corp., Yale	2,000	350	400
York Refining Co., Oklahoma City	3,000	(*)	(*)
Total	312,900	150,910	152,400

*Shut down.

(Continued on Page 40)

One plant in Oklahoma resumed operations, namely, that of the Western Oil Corp. at Beckett, which is running about 400 bbls. of crude daily.

Kansas

One new plant was added to the list of Kansas refineries all of which will be operating in June although some are witnessing a shortage of crude also. The new plant is that of the Falcon Refining Co., an 800-bbl. skimmer located at Great Bend. The June schedule of operations for this plant have been established at 500 bbls. per day starting June 10.

Total crude runs for the plants in Kansas will be higher in June by about 4,000 bbls. The greater share of the increase is accounted for by the 3,000-bbl. increase in the runs of the Skelly Oil Co.'s plant at Eldorado.

This shortage is actual in Kansas and conditions are quite different here from those in East Texas where the shortage is in "cheap" oil only. Readjustments of crude schedules have been made as the result of producers changing connections and what stocks have been accumulated are being held tightly in the belief that a crude advance is in the making.

West Texas

Refinery crude runs in the West Texas area will be less during June by about 4,000 bbls. The total of the individual schedules for June is 34,280 bbls. daily compared with 38,355 bbls. daily during May. Plants in the West Texas area will thus operate on a very low basis compared with their respective capacities.

This will approximate an average of 23 per cent during June which is the lowest rate in the history of the West Texas refining industry. There has been no change in the status of the operating and shut down plants for June.

North Central Texas

During June the North Central Texas group of refineries will run 80,230 bbls. of crude daily compared with 76,370 bbls. in May. This increase is brought about by the addition of three more new plants to the list.

The new plants include those of the Jacksboro Refining Co., a 400-bbl. skimming plant at Jacksboro, W. E. Johnson and associates' plant at Wichita Falls and the Paragon Refining Co.'s plant at Leuders, having a capacity of 500 bbls. daily.

Several major construction jobs were completed in the past few weeks and test runs on the new equipment will be made in June. This will include an initial run on the new 1,500-bbl. cracking unit at the Marathon Oil Co.'s plant at Fort Worth and the starting up of the revised Dubbs cracking unit at the Panhandle Refining Co.'s plant at Wichita Falls in which exchangers were added to permit a combination of the cracking and topping operation.

Arkansas and North Louisiana

Arkansas refiners will run 20,400 bbls. of crude during June compared with 18,200 bbls. in May. The higher schedule of the Root Refining Co. accounts for the greater share of the increase but the total was also increased by the starting up of the Stephens Refining Co.'s new 1,000-bbl. plant at Stephens.

In the North Louisiana refining territory there will be no change in the operating schedule for June and there is no change in the status of the operating and idle plants.

Inequalities of East Texas Proration Orders Are Made Apparent by Study of Field Section

By L. G. E. BIGNELL
Petroleum Engineering Editor

The Texas statutes applying to production of oil and gas as amended by S. B. No. 1, act of November 12, 1932, Article 6,014, covering "waste" states: "The production, storage or transportation of crude petroleum oil or of natural gas in such manner, in such amount, or under such conditions as to constitute waste is hereby declared to be unlawful and is prohibited. The term 'waste' among other things shall specifically include:

"(B) The drowning with water of any stratum or part thereof capable of producing oil or gas, or both oil and gas, in paying quantities.

"(C) Underground waste or loss however caused and whether or not defined in other subdivisions hereof.

"(H) Waste or loss incident to, or resulting from, the unnecessary, inefficient, excessive or improper use of the reservoir energy, including the gas energy or water drive, in any well or pool; however, it is not the intent of this act to require repressuring of an oil pool or that the separately owned properties in any pool be unitized under one management control, or ownership."

This is the law under which the Railroad Commission of Texas is authorized to issue orders fixing allowables for Texas oil fields. The authorized daily allowable for East Texas under the May 17 proration schedule is 826,900 bbls. The average bottom hole pressure as of May 8 was 1,313 pounds per square inch. It decreased at the rate of 4.85 pounds daily for the period between April 24 and May 8. During this period the actual daily production was in excess of 1,000,000 bbls.

This high rate of production has been maintained since May 8 and it therefore seems reasonable to assume that the rate of decline in bottom hole pressure will be at least 4.85 pounds daily or the present average bottom hole pressure is about 1,200 pounds.

The ability of wells in East Texas to produce is regulated by several factors such as permeability of sand immediately surrounding the well, type of flow string, trap pressure and ratio of water to oil, or weight of fluid column.

The reports of U. S. Bureau of Mines engineers recently published in The Oil and Gas Journal indicate that some wells will cease to flow at 1,200 pounds bottom hole pressure while others will still be producing oil by natural flow conditions with a bottom hole pressure as low as 500 pounds.

The hourly rate of flow is another variable factor to be considered in East Texas wells, some wells reaching their maximum rate of production at 6 bbls. per hour while others could produce several hundreds of barrels of oil per hour without drop in pressure being low enough to limit flow rate.

Reservoir Energy Limited

While the capacity for the individual well is variable the rate of production of oil for the whole pool without waste is not. The main source of propulsive energy in the East Texas Field is the water drive. This movement of water will be from the west. It has been determined by a careful study of production conditions in this pool up to April 20, that at 1,374 pounds average bottom hole pressure water will replace oil at the rate of 282,000 bbls. daily.

With a lower bottom hole pressure the water will move into the formation more freely. But at a production rate of over 1,000,000 bbls. daily it has been demonstrated very definitely that water is unable to keep pace with the removal of oil and gas.

This delay in repressuring by water will have a detrimental effect on the field and if past experience in other fields can be taken as any criterion by which to judge East Texas it will result in a vast quantity of oil being entrapped behind water barriers and made unrecoverable.

This waste of oil underground is in direct violation of Article 6,014 which states that waste due to unnecessary, inefficient, excessive and improper use of reservoir energy, "including the gas energy or water drive," is prohibited.

Such waste will be made evident in another manner. The present method of fixing allowables for East Texas wells is causing excessive withdrawals in local areas of closely spaced wells. Such drainage will permit some operators to secure more oil than originally existed under their lease. This is in violation of property rights.

From drilling records and a study of cores a very definite knowledge of underground conditions has been secured. Maps constructed from these data show that in the northern and southern portions of the field the producing formation forms a wedge, widest at the west and tapering to a thin section along the eastern margin of the field. This generalized section is shown in the accompanying sketch.

If this section is divided into spaces it is possible to compute the original amount of oil contained in each zone. These zones are indicated by the vertical lines and are five in number. The horizontal lines represent theoretical water levels if the pool had been produced only at the rate of water movement.

Analysis of Problem

If certain conditions are assumed as existing in the East Texas Field it is possible to represent nearly any section of the field by a truncated, obtuse triangle such as shown in the sketch. This triangle may be divided into five equal surface areas. Each area is allowed to produce at the same rate under orders that have been issued by the Railroad Commission of Texas because the field has always been considered as a whole without any regard to variations in sections.

The rate of withdrawal will continue under present orders until the field is completely drowned out by the water. This water will advance in a horizontal plane which has been indicated by horizontal dotted lines in the sketch. This condition exists in general in East Texas except for certain local areas of dense well spacing.

It may be further assumed that there is a fairly uniform sand condition throughout the reservoir. With the time element for each section the same it is possible to make the following calculations. Such an estimate would show for a typical section. There was originally 58,824 bbls. of oil in place in the first zone on the west.

In each zone to the right or east there was:

Second zone—176,471 bbls. of oil in place.

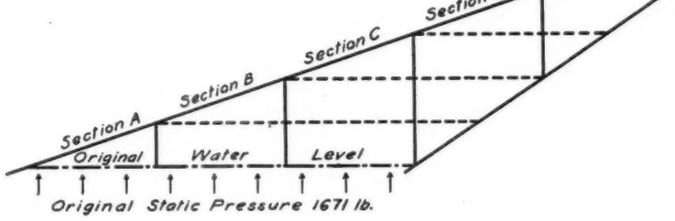
Third zone—294,117 bbls. of oil in place.

Fourth zone—294,117 bbls. of oil in place.

Fifth zone—176,471 bbls. of oil in place.

These are empirical figures based upon 1,000,000 bbls. recovery for the section and only used to illustrate the condition that has been created by proration orders covering this field.

As oil is being withdrawn from all portions of this section at the same time there is a displacement of this material originally occupying the pore spaces in the formation and as such oil and gas movement occurs water will tend to take their place.



GENERALIZED CROSS SECTION

Under controlled conditions this water would move into each section horizontally. It would be in effect a piston forcing the oil and gas to the wells under a static pressure of about 1,671 pounds. This static pressure would not be fully available for a water drive because it must be converted from static to dynamic energy or from a state of rest to one of motion and in so doing part of the original stored energy is consumed.

It is obvious by studying the diagram that this movement would be effective in the west zone first. This triangular area would be the first to be depleted of its oil and the time for such recovery would be much shorter than that allowed for any area lying to the right of it. It is estimated that such a controlled drive would effect a recovery of 64,706 bbls. of oil in this area or about 10 per cent in excess of that estimated as originally in place. This extra oil would be forced to the wells in Section "A" from Section "B". Pressure exerted by this water movement would be equal in all directions and as the original oil in Section "A" would be removed at relatively high rate it is anticipated that some oil from the lower portion of Section "B" would move to the west because it would be in the direction of least resistance. In other words it is easier to move oil laterally through a sand body than vertically.

Next considering Section "B" it is found that it would be under the effect of the water drive for a much longer period and its oil would be forced to travel in a lateral plane and only 130,883 bbls. out of the original 176,471 bbls. would be recovered. This is a loss of about 25.81 per cent of the original oil underlying leases in this zone.

Section "C" is of greatest thickness and as indicated by the diagram was originally all underlain by water. This water will move upward and to the east. To flood this zone will require more time than necessary to flood any other zone in the section. It is estimated that this condition will result in driving oil out of Section "C" toward the east and only 199,510 bbls. out of 294,117 bbls. will be recovered. This represents a loss of about 32.13 per cent.

In Section "D" the water movement will be confined in such a way that it will act more directly upon the oil in place and it is calculated that out of 294,117 bbls. of oil originally in place 273,040 bbls. will be recovered, or there will be a loss of only 7.16 per cent.

While water movement has been acting upon the four sections to the left of the diagram it has also been driving oil updip toward area shown in Section "E." This long sustained water drive will tend to force into this east section 331,864 bbls. of recoverable oil, or an excess of 88 per cent.

All of these calculations are based upon 1,000,000 bbls. of oil being within this cross section of the field and its original position and recovery can be shown in the following table:

Section	Oil in place (bbls.)	Oil recovered (bbls.)	Percentage Plus	Percentage Minus
A	58,824	64,706	10.00	
B	176,471	130,883		25.81
C	294,117	199,510		32.13
D	294,117	273,040		7.16
E	176,471	331,864	88.00	
	1,000,000	1,000,000		

This is another way of illustrating the inequities of prorating the East Texas Field without considering acreage or oil in place. Even if it is granted that the proration methods applied to this field will ultimately secure all recoverable oil this analysis of water movement demonstrates that those leases situated in the central zone will lose a large portion of their oil.

It has long been realized that a line of wells paralleling the eastern margin of the East Texas Field would in time drain oil from all of the area lying to the west. This period would of necessity be of long duration and economically impossible of consideration. It would demonstrate the fact as indicated above, that east zone wells have an advantage under existing conditions, and could ultimately recover more oil than was originally in place under these leases.

Well Spacing

About the only recourse an operator has to reduce such drainage to a minimum is to increase the number of wells on his lease. But here again there is an economic limit. Additional wells will only recover a portion of this oil that is moving toward the East and in many instances the total additional recoverable oil would not be sufficient to justify the added expense to capital investment.

There are many leases along the west edge of the field that do not have average well spacing of 11.27 acres per well for the field. Because of present height of water table in this zone it will not pay to drill additional wells on these

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Licensing Clause in Oil Bill Rejected and Later Approved by Senate Finance Committee

By CHARLES E. KERN
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., June 6.—Controversy over a Federal oil dictatorship took a new turn when Secretary of the Interior Ickes presented to the house ways and means committee and the Senate finance committee an amendment to the industry recovery bill to confer on President Roosevelt such specific powers. The provision read:

"For the oil industry, in addition to the powers granted the President concerning codes of fair competition, agreements and licenses, he is authorized to prescribe regulations to supplement state conservation legislation regulating the production of petroleum and the products thereof among the oil producing states and between domestic production and importations and to prohibit the transportation in interstate commerce of petroleum and the products thereof produced or withdrawn from storage in violation of any state or Federal law or regulations prescribed thereunder."

The Senate committee rejected the amendment by a vote of 11 to 7. The vote follows:

Democrats against: King, Walsh, Connally, Bailey, Clark, McAdoo, Byrd and Lonergan.

Republicans against: Keyes, Metcalf and Walcott.

Democrats for: George, Barkley, Gore, Costigan and Harrison.

Republicans for: Reed and LaFollette.

Marland Bill Defeated

The Marland-Capper amendment giving the Secretary of the Interior power to regulate the oil industry was defeated 17 to 1.

The committee by a vote of 10 to 8 adopted an amendment by Senator Reed (Rep., Pa.) authorizing the President to place an embargo against imported goods to carry out the purposes of the bill. Those voting for the Reed embargo provision:

Democrats — Walsh, Bailey, McAdoo and Lonergan.

Republicans—Reed, Keyes, LaFollette, Metcalf, Hastings and Walcott.

Against were: Democrats—King, Barkley, Connally, Gore, Costigan, Clark, Byrd and Harrison. George voted present.

Licensing Clause Out and In

The committee by vote of 12 to 7 struck out authorizing the licensing of industries which refuse voluntarily to adopt codes of fair competition. Those voting to retain licensing were:

Democrats — George, Walsh, Barkley, Costigan, Lonergan and Harrison.

Republicans: LaFollette.

Those voting to strike out the licensing feature were:

Democrats: King, Connally, Gore, Bailey, Clark, McAdoo, Byrd and Walsh.

Republicans—Reed, Keyes, Metcalf and Hastings.

Chairman Harrison described the licensing section as the heart of the bill and the "only effective weapon" provided to prevent cut-throat competition in industry.

The finance committee later reversed itself and urged by the President restored the licensing clause. Democrats switching in favor of giving this power to the President changing the vote from 12 to 7 against to 12 to 6 for the clause. The only change was to make licensing effective one instead of two years.

The five Democrats who voted for the licensing section after opposing it were King, Connally, Bailey, Clark and McAdoo. Joining them for restoration were George Walsh, Barkley, Costigan, Lonergan and Harrison, Democrats, and La Follette, Republican.

Voting against it were Byrd, Democrat, and the following Republicans: Reed, Keyes, Metcalf, Hastings and Walcott.

The committee, before finally approving the bill, also restored the penalty of $500 for each violation of any code agreement entered into by industries.

An effort by Senator Clark (Dem., Mo.) to strike out the entire industrial control section was defeated, 10 to 8.

Bans Illegal Oil Shipment

Senator Connally (Dem., Tex.), suggested an amendment against the shipment in interstate commerce of oil illegally produced which was approved as follows:

"The President is authorized to prohibit the transportation in interstate and foreign commerce of petroleum and the products thereof produced or withdrawn from storage in excess of the amount permitted to be produced or withdrawn from storage by any state law, or valid regulation or order prescribed thereunder, by any board, commission, officer or other duly authorized agency of a state."

The committee accepted an amendment by Senator Gore (Dem., Okla.), authorizing the President to initiate proceedings before the Interstate Commerce Commission to regulate oil pipe lines and to fix rates for transportation of oil and its products by the pipe lines.

Another amendment accepted by the committee authorizes the President to institute proceedings to "divorce from any holding company any pipe line company controlled by such holding company which pipe line company by unfair practices or by exorbitant rates in the transportation of petroleum or its products tends to create a monopoly."

These provisions were taken from the Capper-Marland oil bill which the committee had previously rejected.

Half-Cent Gasoline Tax

When the Senate committee on finance closed its hearing, Chairman Harrison said he favored a reduction of the proposed increase in the Federal gasoline tax of three-quarters of a cent a gallon as passed by the House to one-half cent a gallon. For the increased income taxes proposed by the House, Senator Harrison preferred to substitute a capital stock tax.

Chairman Harrison placed before the committee telegrams from Ernst & Ernst and the Fourth National Bank of Tulsa saying great injustice had been done the H. C. Wilcox Oil & Gas Co. by Arthur Seeligson by referring to that company in his testimony as "an outlaw in the oil industry in Oklahoma."

G. A. Dye, executive vice president of the Wilcox company, telegraphed the committee denying this assertion "as this company," he says, "has always been and is now willing to co-operate to the fullest extent provided the laws were fairly and justly administered and no preference or discrimination shown."

W. W. Schneider of the Monsanto Chemical Co. appealed to the committee to so amend the bill that it would not tax what is known as "industrial benzol," which is consumed to the extent of from 8,000,000 to 10,000,000 gallons per year.

J. Howard Pew's Argument

J. Howard Pew, president of the Sun Oil Co., said the troubles of the oil industry flow directly from causes for which the industry itself is in no wise responsible.

"I mean," he explained, "the excesses of taxes imposed on our products when they go to market."

He referred to the gasoline bootlegger dodging taxes to undersell honest men's prices and still make a rich profit. By pocketing the taxes alone the bootlegger can become rich.

Replying to Senator Clark, Mr. Pew said it was estimated that 10 per cent of the gasoline sold is bootleg gasoline. He explained that state taxes running from 2 to 7 cents average for the whole country 3.6 cents a gallon. The Federal tax adds 1 cent, making the average 4.6 cents, while gasoline now is being sold from 2 to 4 cents a gallon at the refinery.

"That is a Simon-pure sales tax of fully 100 per cent in the states where the tax is highest. The temptation is irresistible to divert the tax from the public treasury to the criminal's pocket. The industry's earnings are hijacked by extortionate taxes while its pockets are picked by bootleggers."

Mr. Pew said if reasonable gasoline taxes were levied the refiner could and would pay fair prices for his crude and still earn a living profit.

The automotive manufacturer has brought down the average wholesale value of passenger cars from $1,168 in 1900 to $566 in 1931. The makers of gasoline have brought it down from 16.8 cents a gallon in 1913 to 7.96 cents in 1932, quoting from New York City tank wagon prices ex-tax, making the price today the lowest in this century. Government is now sucking the life blood out of the industry.

"And now," said Mr. Pew, "you have before you a proposal to add still more to these taxes."

Facts Against It

Mr. Pew referred to the law of diminishing returns; registrations of motor vehicles falling off sharply last year where gasoline taxes were highest. Gasoline

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Developments at Washington

Amendment giving President special control of oil industry rejected by Senate Finance Committee.

Licensing clause, "teeth" of industry recovery bill, voted out and then reinserted.

Amendment to bar "hot" oil from interstate transportation revised and approved.

New Jersey Standard Drops Control of Retail Gasoline Prices at Stations

By A. E. MOCKLER
New York Bureau, The Oil and Gas Journal

NEW YORK, June 5.—Standard Oil Co. of New Jersey and its domestic marketing subsidiaries, in adopting the seaboard cargo gasoline price at the U. S. Gulf as the basis for its gasoline price structure, has completely revised its pricing policy, entirely divorcing the company from responsibility for posted prices at dealer stations, which constitute the bulk of the company's gasoline volume. Under the terms of its new pricing policy, it is understood, the company will no longer require that its dealer representatives adhere to the company's posted price schedules, but will continue to allow the retail distributor a uniform fixed margin and leave the matter of retail prices solely to the latters' discretion.

New Policies

The outstanding features of the new pricing policy are as follows:

1. The policy of the company henceforth will be an effort to maintain an economic wholesale price structure, based on the gasoline cargo market prevailing at the U. S. Gulf.

2. At company owned and operated stations the company will post what it considers a fair retail price, subject to competitive conditions in the particular area, and based on the seaboard cargo market.

3. A large part of the company's retail sales volume is handled by independent dealers, and henceforth posted prices at dealer service stations will be established by the dealers themselves, subject only to local competitive conditions. As a result of this departure in policy, the company in future assumed no responsibility for retail posted prices except those in effect at its own stations, which may set an example for independent dealers distributing the company's products as to what the company considers a fair price.

4. The independent retail dealer will continue to receive the same margin of profit as under previous sales arrangements, 2 cents per gallon, and the only difference to the dealer under the terms of the new agreement is that any losses which may ensue from price cutting which the dealer may indulge in will come out of his own pocket, instead of being underwritten by the company, as has previously been the case.

Basis for Prices

Prices will henceforth be figured on the following basis,

Tank car quotations—U. S. Gulf cargo prices, plus transporting, handling and other charges.

Dealer's price—Tank car price at basis point of tank wagon distribution plus 2½ cents per gallon.

Posted service station price—Tank car price at basic point of tank wagon dis-

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A. I. M. E. Stabilization Forum, Article No. 4; Political Considerations in Oil Stabilization

By EARL OLIVER

That outstanding analyst, Dean Pound, states that a study of stabilization requires consideration from four designated standpoints, one of which is political. We suspect his classification is on a much broader basis than that with which it is treated in this article, but "practical" politics is the aspect that immediately occurs to most of us in the oil industry. "Practical" politics is the bane of those who sincerely desire to bring about stabilized conditions in the oil industry and who have learned the part government must play in any such adjustment. We hope to have political consideration treated broadly in later articles by specialists in that field, but shall confine its discussion herein to the narrower field indicated above.

We are privileged to reproduce in this week's A.I.M.E. forum two communications from gentlemen qualified from experience to speak on this subject as it is known in Oklahoma. The first is from Chester H. Westfall, an independent operator who has had much experience in the political field. The second is from Honorable Paul Walker, chairman of the Oklahoma Corporation Commission that exercises state supervision over oil and gas matters in Oklahoma.

Mr. Westfall's introduction to Oklahoma politics took place while he was yet a student at Oklahoma University. In 1915 he undertook publicity work for the university. Later he became executive secretary of the Oklahoma State Council of Defense. At the close of the war he was made joint state chairman in floating the "Victory Loan" and became private secretary to the then governor, Robert L. Williams. Thereafter he became a member of the Marland organization at Ponca City. His activities with the latter organization were extensive in scope, but among them was that of president and general manager of the Marland Oil Co. of Mexico with headquarters in Mexico City. His results in developing and maintaining a place of confidence for his company in that republic during a period of political turmoil was conspicuous for its success. Since 1928 he has been engaged as an independent lease and royalty owner in Texas and Oklahoma. His letter follows:

Mr. Westfall's Views

Ponca City, Okla.
May 27, 1933

Mr. Earl Oliver,
Ponca City, Okla.
Dear Mr. Oliver:

Whether or not the industry at large realized it, when oil producers were forced to abandon voluntary curtailment of production and place dependence upon state laws for forcing conservation practices, stabilized production and fair and reasonable prices, the star to which the industry was hitching its wagon was politics. Legislators, elected by public ballot, enact laws, the enforcement of which depend upon the acts of others, likewise elected by public ballot.

Oil companies themselves sponsored "conservation laws." These laws were viewed with considerable suspicion even by those who would have profited most from their enactment and strict enforcement. No one would pretend that state control of production has been a success. The result is not only the gradual bankrupting of an industry, but also, to equal or greater degree, the bankrupting of the people of the chief oil producing states.

The necessity for fair and reasonable crude prices has become so great to so many people in and outside the oil producing states that a president who believes in action and who at least at present controls the national legislative branch is apparently taking charge. The oil industry may have this problem solved for it temporarily without sound education of the general public who go to the polls and vote.

If and when stabilization of production and fair prices should again become a subject for action by the oil producing states, the problem will be a simple one if the oil industry will leave to its "associates" in the industry, those more powerful at the ballot box, and in legislative halls, the enactment of laws and their vigorous enforcement.

Using Oklahoma as an example, those "associates" are, first, the royalty owners, hundreds of them for every producer. One dollar a barrel instead of 25 cents would mean more than a million dollars a month additional return to Oklahoma royalty owners, money that would be deposited or pay off loans in Oklahoma banks, buy automobiles, merchandise, real estate, go into every channel of commerce and trade in the state. Other "associates" are the farmers of Oklahoma, who have between 5,000,000 and 10,000,000 nonproducing acres under oil lease at an annual rental of 50 cents to $1 per acre, most of whom have learned to depend upon rental money with which to pay taxes, and many of whom, with leases cancelled or rentals reduced, are now losing their farms in part because of lack of stabilization of oil production in the Mid-Continent.

Some 15,000 school teachers in Oklahoma whose pay warrants are not cashable at par would have fewer financial worries if Oklahoma's second greatest product were selling at a reasonable price.

Oklahoma's gross production tax on 400,000 bbls. per day at $1 a barrel would amount to more than $4,000,000 per year instead of the slightly more than $1,000,000, based on the present production and price. Taxpayers in general must make up the difference, through ad valorem or other taxes.

The fact is that a fair price for crude means reasonable prosperity for the few oil producing states, for their bankers, farmers, professional men, laborers. Almost every person, in any profession, trade or position, is affected directly or indirectly. This is true in each of the important producing states.

Practically the total price paid for a barrel of crude, excepting only the cost and transportation of materials used, some overhead, and profit if any, remains in the state from which the barrel was produced.

If the oil industry will make clear to its "associates" in the oil producing states just what vital, selfish interest each person has in stabilized production, and turn over to those "associates" the problem of organizing among themselves—assuredly with some assistance and direction—demanding and obtaining curtailment and fair price, this part of the industry's problem will solve itself.

If the industry does not do this perhaps others interested primarily in seeking public acclaim in these oil producing states may do it. The people of the oil producing states will look out for their own interests effectively, perhaps, but it will be done by a public that feels it has been exploited by an industry, rather than by a public that considers itself an "associate" of the industry.

A fair price for crude is a vital factor in profit or loss for oil company stockholders. It is a problem not only of profit or loss but of subsistence itself to a large part of the populations of the producing states.

A frank and fearless recognition of this fact and a call on these "associates" to put their shoulders to the wheel will solve the industry's political problem, quickly and permanently.

Very truly yours,
(Signed) CHESTER H. WESTFALL.

Chairman Walker's Record

The comments by Honorable Paul Walker are made from a completely different viewpoint than those made by Mr. Westfall. Considerable space is devoted in our comments to Mr. Walker's antecedents and early experience in the endeavor to discover the sources of his philosophy and the depth to which it is rooted in his life, for the character and motivating influences of a public official have a direct bearing on the welfare of the industry over which he has supervision. That industry eventually reflects the attitude and character of the man who directs it. It becomes what he is.

Mr. Walker was born January 11, 1881, on a farm in Washington County, Pennsylvania, and spent his boyhood days there. He received his early education in the rural and normal schools of Southwest Pennsylvania and came to Oklahoma as principal of the Shawnee High School, which position he held during the years 1905 to 1908, inclusive. He supplemented his early education at the University of Chicago from which he received his Ph.B. degree in 1909, and at University of Oklahoma where he was debating coach and studied law during the years 1910 to 1912, inclusive, and from which he received his LL.B. degree in 1912. He then practiced law at Shawnee during 1912 to 1914, inclusive, and came to the Corporation Commission January 1, 1915, as attorney, remaining until 1919, during which time the present Oklahoma conservation laws were passed. He then became Supreme Court referee until January 1, 1921, at which time he returned to the Corporation Commission as special counsel on rate matters, appearing mostly before the U. S. Interstate Commerce Commission, in which capacity he continued until 1930 when he was elected member of the Corporation Commission and assumed that office January 1, 1931. He immediately became chairman of the commission and has so remained until this time.

Mr. Walker came from Quaker antecedents who migrated from the Shenandoah Valley of Virginia to Washington County, Pennsylvania, as farmers. He obviously inherited from them the characteristics associated in the public mind with that peculiar people if the experiences and reactions received by us in securing comments from him may be accepted as criteria.

Personal Impressions

It occurred to us when this A.I.M.E. forum was started some facts about and opinions of Oklahoma's chief conservation officer would be pertinent to a study of stabilization in this state. However, we found Mr. Walker reticent to discuss stabilization publicly except through pronouncements delivered from the bench. Only after persistent effort and intercession by mutual friends were we able to persuade him that the cause of stabilization and conservation might be furthered by a contribution from him to the discussion carried on through these columns. He is legalistic and judicial in tendency.

Engagements of his elsewhere as this is written and sent to the press have prevented an opportunity to submit this article to him for censorship and correction after securing from him his comments and the necessary broad outline of facts. So we propose doing here what we shall probably not again have an opportunity of doing, namely, publishing some personal impressions of him.

Our first and last impression is that he has nothing about him of the so-called "practical politician" type but that he has practically everything we like to see in a public official.

In the first place he has a keen sense of public duty and an intense desire to be of service in the field he occupies, but is not deeply concerned about his own political future. He is a sincere conservationist. His boyhood days were spent in one of the outstanding oil producing counties of the United States. It contained the famous McDonald oil pool that was then as important, relatively, to the industry during his boyhood days as the Seminole Field is today. He is, therefore, familiar with the rapidity with which a nation's natural resources can be dissipated.

He married the only sister of Gov. Robert L. Wil-

liams and appears to have many of the ideals and ideas that characterize that rugged individual. It is significant only in that "birds of a feather flock together." His distinguishing characteristics are too deeply rooted to come through association. Among those who have most confidence in his leadership today are college mates who give as their reasons the honesty and sincerity displayed in those earlier days.

These remarks are prompted by our study of stabilization. We are not interested in Paul Walker but are interested in a stabilized industry on which our living depends. Stability to that industry can come only through intelligent and honest co-operation between the industry and the state that is interested not only in the producer but in the consumer as well. Such co-operation can come only through sincere, intelligent and well equipped public officials; but these in turn can do nothing without the militant moral support of the good citizenship of the state. That moral support cannot come without public knowledge regarding the individual himself.

Public knowledge concerning Paul Walker will not come through that individual. Therefore in the interest of stabilization we take pleasure in making such contribution to that knowledge as we can. The writer alone is responsible for these comments. They are not influenced by partisanship or friendship, for Mr. Walker is of the opposite political party from the writer and of recent personal acquaintance only—which are of no consequence or relevancy. What alone is of importance is that he is the chief conservation officer of the state, well equipped, well qualified and well disposed, but cannot succeed in the difficult task of guiding the oil industry's readjustment without the confidence and loyal support of all citizens. The following comment is the only statement I am authorized to use. It typifies the man.

The Political Aspects of Conservation of Crude Petroleum and Natural Gas

By PAUL WALKER

Inquiry has been made for The Oil and Gas Journal as to my personal views on the political aspects of the question of conservation and equitable taking of crude petroleum and natural gas.

What I say here will go only for the State of Oklahoma and its crude petroleum and natural gas conservation and equitable taking laws, and the administration thereof.

The only proper political question at issue, as I see it, is the governmental policy of legislation and administration. The question of legislation is in the background for the reason that the laws have been enacted and the administration left with a designated governmental agency. What may be said then as to the determination of whether conservation of crude petroleum and natural gas is a proper subject for governmental legislation does not now concern the writer. The arguments thereon, if drawn in issue, must be thrashed out before the Legislature.

Again, what governmental or administrative machinery should be set up for the administration of the law, or what governmental agency already set up should be charged with the duty thereof, is not at issue for the reason that the legislature has charged the Corporation Commission with the duties of administration of crude petroleum and natural gas conservation and equitable taking laws. The reason for the selection of the Corporation Commission as this governmental agency was largely upon the ground of expediency. The Corporation Commission is a constitutional body endowed with legislative, judicial and administrative or executive powers thought necessary for the proper functioning of these conservation and equitable laws.

The next question, therefore, and the pertinent one here, is what setup shall be made to assist the Corporation Commission in the administration and enforcement of the laws relative to the conservation of crude petroleum and natural gas and the equitable taking thereof. On this point there ought to be no ground for debate. Honesty, efficiency and fair dealing should be the guiding principles in the organization and functioning of the crude petroleum and natural gas conservation and equitable taking, or proration, organization.

The laws brought down from Mount Sinai are as applicable today as when Moses gave them to the children of Israel. While there may have been differences of opinion on the wisdom of the governmental policy of the legislative enactments, there is no issue presented in the commandment "Thou shalt not steal," and that law applied to the selection and operation of the governmental setup for the administration of the conservation and equitable taking laws would largely solve the political question.

The functioning of the conservation, or "proration" organization must keep in mind the rights of all involved, including those of society and the State.

It goes without saying that the selection of the personnel should be on the basis of integrity and efficiency. Knowledge of the business of producing and marketing crude petroleum and natural gas and the proper methods of conservation thereof should be a prerequisite for consideration for employment of the technical assistants. Only the best qualified assistants available should be employed; and no man whose integrity can be questioned should be selected, no matter how extensive may be his professional, technical or practical qualifications. No purely political consideration, in the sense that term is applied to patronage, should determine the selection of any agent or employe. "Politics" cannot be substituted for integrity, knowledge of the business and practicability to give service.

The basic principle of political administration should be honesty, efficiency and square dealing. With that kind of political setup, no honest interested party can complain of the administration of the law. Given honest, fair and efficient governmental regulation and administration, whatever fight there may be against conservation and equitable taking must be directed against the law itself, and the policy involved therein.

Another pertinent phase of the political aspects of conservation and equitable taking is the attitude of the operators and others who can assist in upholding the administration and the laws. The conservation and equitable taking laws are subject to constant attack from those who oppose governmental interference, whether from principle because of inability to produce oil and gas in the manner they desire, or because of failure to get as much oil as they could get were conservation and equitable taking not in effect. Therefore, there is both an opportunity and a duty for those who conscientiously believe in the conservation and equitable taking to assist in developing and making known facts, in spreading the truth, and in supporting the laws and the governmental agency charged with the administration and enforcement of those laws.

Inequalities of East Texas Proration Orders

(Continued from Page 9)

leases. Such late wells would not have enough remaining production life to permit them to secure sufficient oil to pay out.

Wells could be drilled on leases in the central and eastern zones of the East Texas Field even at this late date with profit because it is quite probable that these zones will continue to produce oil for a considerable time, variously estimated at from 5 to 15 years, during which period sufficient oil could be secured to pay for the added expense.

Before a recent hearing of the Railroad Commission of Texas it was stated that there were about 780 wells drilled on tracts of less than five acres. These wells were divided as follows:

Size of tract—	No. of wells
1 acre or less	129
1 to 1.99 acres	155
2 to 2.99 acres	200
3 to 3.99 acres	125
4 to 4.99 acres	171

Conclusions

If the general line of reasoning as set forth in this article is granted as being sound there are several conclusions that can be drawn from conditions in East Texas Field. The principal factors that tend to set up the large discrepancies between the estimated oil in place and the oil recoverable from the various sections may be ascribed to the total number of wells on a lease as compared with the average well density for the field.

Wells completed early in the life of the field have enjoyed a larger allowable production with a relatively small withdrawal of the oil actually underlying the lease.

In a general way those leases located in the central zone of this field have greater sand thickness and larger sand bodies. These leases originally contained a larger amount of oil than leases along the western or eastern edges of the field where the relative thickness of the oil saturated portion of the Woodbine sand is less. It should follow that proration orders should take such conditions into consideration and those leases be permitted to secure higher daily amounts of oil to compensate for shorter periods of production.

Leases that are located along the western and eastern edges of the field have truncated producing sand sections which materially reduced the amount of oil originally under those leases. This factor has not been considered in issuing proration orders and based upon property rights of oil in place orders have been manifestly unfair to leases having thicker sand bodies underlying them.

Leases along the eastern zone of the East Texas Field will have progressively longer production lives because of their structural position. As oil will be driven toward this eastern zone from the thick central sand bodies if the present method of prorating East Texas wells is continued they will have a material advantage and ultimately will secure a very large amount of oil that did not originally exist under those leases. While this is of advantage to owners of leases in the eastern zone it is obviously unfair to other operators with property lying to the west and violates property rights of such owners.

It is recognized that there are also a number of other factors that will influence ultimate recovery in East Texas. However, it is believed that the general statements made are based upon sound logic and should have some consideration in framing future proration orders for East Texas.

Most engineers agree that the present rate of withdrawal is far in excess of rate of water movement and recent reports indicate quite clearly that hundreds of wells will soon have their bottom hole pressures reduced to below flowing requirements. With high differentials established between areas surrounding wells and the natural hydrostatic pressure of the water there will be unrestricted movement of water into the reservoir and it is feared that much of the recoverable oil will be trapped behind water barriers and made difficult to recover in the future. Such a condition is in direct violation of the Texas statutes defining "waste" and should be avoided by the issuance of proper proration orders for this field.

The Oil Man's Calendar

June

8—New York, National Automobile Chamber of Commerce.

12-16—Chicago, Ill., tenth annual meeting, American Oil Burner Association, Stevens Hotel.

25-30—Chicago, Ill., "Engineering Week," sixth Midwest Engineering and Power Exposition.

26-30—Chicago, Ill., annual meeting, American Society for Testing Materials, Stevens Hotel.

29-30—Pennsylvania Grade Crude Oil Association, State College, Pa.

July

19-25—London, England, World Petroleum Congress, Imperial College of Science and Technology, South Kensington.

22-29—Washington, D. C., International Geological Congress.

September

20-22—Atlantic City, N. J., National Petroleum Association, thirty-first annual meeting, Traymore Hotel.

25—Chicago, Natural Gas Department, American Gas Association.

October

24-26—Chicago, Ill., fourteenth annual meeting, American Petroleum Institute.

December

4—New York, fourteenth Exposition of Chemical Industries, Grand Central Palace.

DR. E. H. S. BAILEY DIES

Dr. Edgar H. S. Bailey, who had been the professor of chemistry at the University of Kansas for nearly 50 years, died at Lawrence, Kans., June 1. He was the originator of the Industrial Fellowships established for the investigation of chemical problems relating to industry. Research workers under his guidance were responsible for many discoveries relating to natural gas and the petroleum industry. This work grew so rapidly that it was found necessary to transfer the organization to Pittsburgh, Pa., where numerous research fellows are engaged in the Mellon Institute.

Intermittent Application of Pressure For Drive Is Suggested as Means of Efficient Operation

By E. G. WOODRUFF
Consulting Geologist, Tulsa

Repressuring of oil wells has become an important part of the petroleum industry even when there is an excess of oil from flowing and pumping wells. The purpose of this paper is to point out some of the ways the oil moves in the sand under pressure and to suggest a modification of repressuring which may result in greater recovery of oil.

The cross section of an ordinary sand bed with variable grades of sand and with shale partings is represented in the sketch. It is the usual type of sand bed found in producing oil fields. Our records generally show the producing formation as "sand" and from this statement it is assumed that the bed is composed of uniform material. But cores of the sand seldom show such conditions. There are coarse and fine parts of the sand; there are shale partings; there are areas in which the sand is cemented with lime or the pores stopped with clay. With these conditions in mind the sketch has been drawn to represent a typical oil sand bed.

It is assumed that the sand was saturated with oil under pressure but that most of the oil which can be obtained by flowing or pumping has been taken out. Generally only 20 per cent of the oil has been recovered hence 80 per cent remains in the sand. In fact the sand is still full of oil but the pressure is lowered. When gas is pumped into the pressure well (marked gas well on sketch) two actions take place, namely, oil is driven from the sand and gas replaces it; and, second, the oil absorbs the gas until the oil is saturated under the increased pressure. Careful experiments have shown that as the pressure increases greater quantities of gas can be absorbed in the oil and that as the pressure decreases gas escapes though the oil remains partly saturated at the decreased pressure. Oklahoma crude of 35.4 A.P.I. gravity dissolved 21 feet of gas at 100 pounds pressure; 42 feet at 200 pounds; 64 feet at 300 pounds, etc. (Osgood—The Recovery of Petroleum, Volume 1, page138).

Different Effects

Another important factor in this consideration is that there are different rates of action in the different parts of the sand bed. The flow is rapid in some parts of the sand bed and slow in others. In sand like that represented in the sketch if high pressure is applied the oil is "blown" through the coarse sand and flow channels established while very little result is shown on the tight part. Figures seem to indicate that as little as 100 pounds differential pressure between the intake gas well and the outlet oil well will produce this result. In such action "flow channels" are established through the coarse sand from which the oil is driven, and the medium and fine grained areas are unaffected. The oil remains in the tight areas as long as the pressure is maintained. On the other hand a low pressure on the intake does not "blow" channels but drives slowly into all parts of the sand. But to affect all parts of the sand equally the pressure must be so low that it is unprofitable to take the necessary time to secure the oil with these low pressures. High pressures tend to secure the oil quickly but not in maximum amounts; low pressures tend to secure the maximum returns but over a long time.

However, in both of these methods as usually applied there are fine and even medium grained sand areas from which the oil is not driven by high pressure over a short time, or by low pressure over a long time, because the pressure is constant. The constant pressure simply builds up a pressure in these areas which does no work, it is static, no oil movement results as long as the pressure is constant. The pressure must be variable, not constant, to give the best results. As the gas is forced into the intake well pressure is built up in all the sand bed but in the tight parts of the bed there is only slight movement of the oil but the amount of the gas dissolved in the oil is approximately doubled with each doubling of the pressure.

Reserve Force Built Up

A reserve force is built up capable of action when input pressure is lowered and this force becomes applicable when the pressure is decreased. As the pressure declines gas is freed throughout the sand bed, the oil is moved freely in the coarser areas because there is less resistance in that part of the bed. In the tighter parts of the bed gas is freed under lessened pressure and all moving forces are brought into play to move some of the oil from those parts of the sand into the more favorable looser parts.

Any change of pressure throughout the sand body alters the position of the oil in the interstices but pressure held constant does work only in favorable areas. Changes of pressure are necessary for movement of the oil throughout the sand.

In some ways this action is like the action of the air chamber on a pressure pump. When the plunger moves forward some fluid is moved into the pipe while some moves into the air chamber where it compresses the air in the chamber and builds up a potential force. When the forward movement of the plunger stops the compressed air in the chamber expands and continues the movement of the fluid. The introduction of the gas into the sand must give the oil some movement but the chief action is to build up energy; then the decrease of pressure frees the gas and permits the freed gas and the other forces to move the oil.

The oil is most effectively moved on the decline. If one such building up of pressure then decline causes some movement of the oil then a succession of such actions must result in a flow of oil.

The oil is produced from the tighter parts of the sand as well as the more open parts. This variation of pressure is effective in the parts of the sand where no flow is obtained by constant pressure whether that pressure is high or low. It is reasoned that more effective cleaning of the sand is obtained by variable rates of pressure in repressuring.

Pulsating Action

This alternate higher pressure followed by lower pressure might be called a pulsating system. It is suggested that in actual practice neither high pressures nor actual stoppage be employed but rather a variation of pressure; a higher pressure for a period, then a lower pressure for a time, then the reverse. The time of these variations cannot be fixed now with the data available but sufficient time to build up pressure and a sufficient time to relieve it are necessary. In fact in all repressuring operations each property must be studied and handled according to its reactions to repressuring. There can be no uniform rate for pressure. It is suggested that at the beginning of the pulsating system a period of one month be used for one pressure and an equal time for the other.

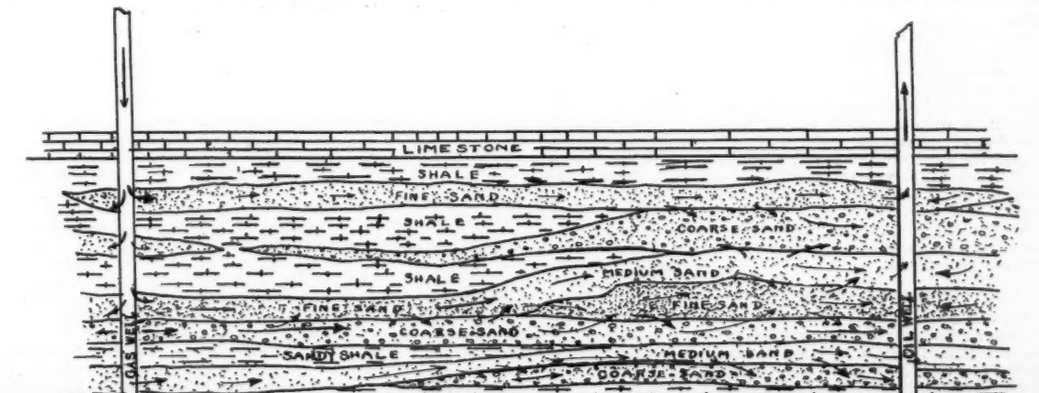
The effect of this system is to build up pressures in all parts of the sand and to saturate the oil with gas under the higher pressures, to develop a condition even in the tighter parts of the sand with forces favorable for driving out the oil if these forces are given an opportunity to act. By reducing the pressure the forces built up in the fine parts of the sand body are given an opportunity to expel the oil to the looser parts. When these stored up forces have completed their work an increased pressure rebuilds the expelling forces and re-establishes conditions ready for another drive. The oil is thus "worked" out of the sand.

One company now repressuring reports good results under a modification of this plan. The company owns a group of leases favorably located on the structure. The oil production is from the Dutcher sand with some gas under light pressure in the Layton and gas under heavier pressure in the Tanneha. Layton gas gives a constant pressure of about twenty pounds; the Tanneha builds up a pressure of 100 pounds when the wells are closed for a short time.

The method of operation is to apply the pressure of the Layton sand and hold a constant pressure of 20 pounds then for a few hours each day to apply the 100 pounds from the Tanneha.

It has been found that if the high pressure is held constant the gas blows through to the oil wells. On the other hand if only the low pressure is applied the oil production drops. The superintendent reports "After various plans I find that we get the best results by giving it a kick each day."

In suggesting a pulsating system the writer is aware that he has no data to give results where the plan has been carefully checked but the various data available promise good results for the system.



Ideal section of producing formation

New Oil and Gas Laws Passed in Texas Session

AUSTIN, Tex., June 5.—A summary of the bills relating to oil and gas enacted at the regular session of the Forty-third Legislature follows:

S. B. 92.—Permitting sour gas to be used for purposes other than light and fuel. Also a percentage of sweet gas which has no market outlet.

H. B. 791.—Providing that in condemnation proceedings, mineral rights of condemned party shall be superior to surface rights of condemning party.

H. B. 878.—Redefining marginal oil wells and reducing their statutory allowable from 40 to 20 bbls. a day in wells of East Texas depth.

S. B. 203.—Requiring river bed oil producers to comply with proration and other conservation laws.

H. B. 154.—Changing basis of oil production tax to 2 cents a barrel up to $1 and 2 per cent when more than that price.

H. B. 844.—Making it a felony to violate proration and other conservation orders of the railroad commission.

H. B. 950.—Re-enacting H. B. 844, making it a felony to violate proration or other conservation orders of railroad commission so as to make valid emergency clause and correct other errors to insure immediate effectiveness of law.

H. B. 949.—Placing oil pipe lines under provisions of intangible assets tax law.

S. B. 145.—Making it a felony to tap oil or gas pipe lines, conduit or storage tank and steal its contents.

COMPLETION IN MEXICO

Mexican Eagle Oil Co. has completed well No. 33 in El Burro Field in the northeastern part of the Isthmus of Tehuantepec, Mexico. Well produced approximately 1,200 bbls. daily from a depth of 774 meters.

Upper Cockfield Sand Wells to Be Prorated; Potential Tests Ordered in Conroe Field

By NEIL WILLIAMS

HOUSTON, Tex., June 5.—The Texas Railroad Commission has ordered potential tests taken in the Conroe oil field of Montgomery County to determine the ability of the wells to produce. Key wells will be selected and the data collected within 30 days for consideration in promulgating conservation rules for the area.

The allowable for the field has been fixed at 60,000 bbls. daily, including production from seven wells previously permitted to flow open. The allowable has been 60,000 bbls., but exception was made in the cases of seven wells. The allowable has been based on an acreage and per well basis.

The commission ordered that all wells "be governed alike by the proration orders which are in force for the field, whether such wells produce from what is commonly known as the upper Cockfield sand or from what is commonly known as the Conroe sand, or from any sand between the upper Cockfield and the Conroe sands."

The commission "finds that probably the most reasonable way to allocate production among the various wells in the Conroe Field is on a basis which takes into account, in part at least, the relative producing abilities of all said wells."

It pointed out that "before such a method of allocation of production can be adopted tests should be made of the producing abilities of a sufficient number of wells to determine whether or not such tests do actually show the relative producing capacities of all the wells in the field in a substantially accurate way."

It is said that, on account of conditions which exist in the field, "especially the presence of enormous quantities of gas and the danger of great damage to wells and field in the event the wells are operated under open flow conditions, that it is impracticable to attempt to take open flow tests, but that it is possible the relative producing abilities of the wells may be indicated by open flow tests through a uniform choke."

It was ordered that oil produced from each key well during the test be charged against the future allowable production of the well tested.

Two Sands Or One Reservoir

The question whether the upper Cockfield and the main Conroe sands are producing from one common reservoir with free intercommunication, or constitute two entirely separate pools without any direct contact was the problem which the commission considered at the special proration hearing held for Conroe at Houston.

Until recently the two sands have been looked upon generally as comprising two separate fields. At a hearing held last February and at another hearing later, it was shown by the facts then available that there were two sands separated by 200 feet of impervious shales. Over the top of the structure the upper, or upper Cockfield sand, it was explained, carried only wet gas while down dip around the margin it yielded oil. At that time and now the only definitely proved upper Cockfield oil production is along the east and southern flanks.

Proration Problems

Because production of wells definitely classed as being in the upper Cockfield has not totaled 10,000 bbls. daily until lately, the railroad commission has not placed production restrictions upon them except in following out their efforts to prevent any actual physical waste. The allowable production of Conroe has been 65,000 bbls. daily since May 1 but upper Cockfield wells have not been included in this and lately daily output has increased to over 80,000 bbls.

Limiting the increasing excess production has been a puzzle due to the difficulty of determining which wells are in which sand. While only a dozen wells are known definitely to be in the upper Cockfield there are near two dozen others for which operators have sought recognition, wells offsetting upper Cockfield producers in many instances have been permitted to produce open because of the doubt as to their producing horizon as the two sands along the margin seem to be encountered at approximately the same actual depth and in some cases marker points used as a guide are disputed. The problem is the more acute because the principal activity at Conroe now is centered in the development of the sands along the eastern and southern margins of the structure.

Operators seeking proration of the upper Cockfield advanced a new theory of geological conditions at Conroe which, according to their testimony, indicated that the two sands are producing from a common reservoir and in view of this the upper Cockfield sand wells could be included in the proration schedules applied to wells in the main Conroe sand.

Says Sands Communicate

F. W. Michaux, resident geologist of the Humble Oil & Refining Co. at Conroe, was the chief witness for operators seeking to include the upper Cockfield wells in proration orders for the main field. It was Mr. Michaux, who, at the February hearing, explained the geological and structural conditions of the field and who at that time stated for a fact that the two sands were entirely distinct, separated by 200 feet of impervious shales and apparently without communication. At the recent hearing he testified that, in view of developments and later information gained from the completion of approximately 395 wells as compared with 165 to 185 wells at the time of the former hearing, he had changed his former conceptions of the conditions. He stated that although originally and normally the two sands were separated by approximately 200 feet of impervious shales, through block faulting or gravens the upper Cockfield sand in certain places had dropped not only to the top of the Conroe sand but well down in the latter horizon so that there was direct communication between the two sands at those points, and, through the down thrown upper Cockfield sand to the periphery of the domal structure where the fault played out to a direct contact with the sand overlying the entire structure.

He cited this fault as extending in a northeasterly-southwesterly direction across the south central portion of the field and indicated by Sun Oil Co.'s No. 3 Stewart, which, he stated, was 274 feet lower than wells on either side and that it was producing from the upper Cockfield sand at a point well below the top of the Conroe sand in which the adjoining wells had been completed. He pointed out that if the well had been drilled to the Conroe sand, 200 feet still deeper, it would have been in the water. There are several other major faults in the field but this is the only one where the downthrow is sufficient to contact the two sands.

Mr. Michaux stated his reasons for knowing that the two sands are producing from a common reservoir are based on the fact that the two sands have a common fluid level, a common water level, the gravity of the oil is approximately the same when casing is set below the gas-oil contact at minus 4,850 feet, bottom hole pressures are approximately identical in both sands and the gasoline content of the gas is about the same.

Argument for Two Sands

Opponents of placing upper Cockfield proration on the same basis as the Conroe sand wells sought to show that the fault pictured was merely a conjecture or theory arrived at by one well only, this being Sun's Stewart well, and that the evidence offered had not definitely proved that this well had not been drilled by error in markers, to the Conroe or some intermediatory sand horizon. They later placed on the stand H. H. McKee, a consulting geologist and engineer, who stated that in view of the distance between the Sun well and adjoining wells the difference in elevation could be explained easily by a dip and such a dip was not unreasonable. He expressed the opinion that the two sands were not in communication and were producing from two separate reservoirs.

Testimony of Mr. Michaux concerning the water level, fluid level, bottom hole pressures, and gravity of the oil also was questioned in the cross examination, which sought to bring out that similarity had not been established as the facts on which the similarity had been based had not been determined definitely.

John F. Weinzierl, consulting geologist, was another witness for the operators opposed to upper Cockfield restrictions. He also expressed the opinion that the two sands were not in contact at any point and constituted two separate reservoirs, and discredited the fault theory advanced by Mr. Michaux. It was his testimony that the sands at Conroe were very lenticular, which would account for the variances in depths of the pay.

J. W. Storm, geologist for the Sun Oil Co., bore out the testimony of Mr. Michaux. He testified that although geologically and paleontologically the two sands might not be the same, he was of the opinion that there was intercommunication and passages by which pressure could be transferred from one formation to another. George W. Goad, of the crude purchasing department of the Tide Water Pipe Line Co., testified that although the gravities of Conroe oil varied somewhat, the oil, if produced under similar conditions with the same time element considered, would be approximately the same. W. W. Scott, chief petroleum engineer of the Humble Oil & Refining Co., brought out that if the two sands were producing from a common reservoir, uncontrolled production from the upper Cockfield sand would affect the Conroe sand.

Testimony on Potential

Other testimony had more to do with potentials of the field, possible daily recoveries in view of conservation and prevention of hazards, methods of proration and well spacing. E. O. Buck, chairman of the engineering committee of the Conroe Oil Operators Association, estimated that the field, when fully developed with approximately 800 wells, could produce safely approximately 100,000 to 110,000 bbls. daily, this being based on an average recovery of 6 to 7 bbls. daily per acre.

J. S. Abercrombie, Gulf Coast operator, testified as to the fire and blowout hazard existing at Conroe and emphasized the fact that wells should not be spaced closer than at present except for necessary emergencies and added that the present spacing was reasonable. He warned that because of the sand conditions no wells should be allowed to produce at a high rate as there is grave danger of wells cutting out connections, blowing wild, permitting gas to spread over the field through highly permeable shallow sands and result in immense property damage and possible loss of life. He figured that 200 bbls. per well would be a maximum safe rate of flow per well. It was his opinion that the per well allowable should be based 50 per cent on a well's ability or potential and the remainder on acreage.

Try to Iron Out Differences of Opinion on Paleontology in Gulf Coast Area

By NEIL WILLIAMS

HOUSTON, Tex., June 3.—The confusion which has arisen in paleontological correlation on the Gulf Coast occasioned by the differences in nomenclature by various companies has resulted in steps being taken by paleontologists and geologists to work out a standardization of classification and determination of horizon markers. The task being undertaken is a difficult one and for a satisfactory agreement to be reached it is anticipated that the present designation of horizons will have to be discarded in favor of a system of identification by zoning according to the respective type forms.

The need for agreement in correlation has come to particular attention within the past year with the increasing importance placed upon paleontology in connection with the intensive exploration program which has been and still is going on along the Gulf Coast. This development has spread to those virgin and semi-virgin areas outside the strict salt dome district where trends are played and where checking of markers figure vitally in determination of a wildcat's or area's possibilities for production.

Greatest Disagreement

The greatest disagreement has been in the Jackson and Yequa series. It is the exploration of these formations that is the center of activity at this time, and it is this, perhaps more than anything else, which has brought the necessity for a correction of the many irregularities to a focal point. Previously on the coast, development was centered largely in the shallower Miocene and upper Oligocene sands of comparatively recent age and on and around salt domes in which markers were of little concern.

Much consideration now is being given the problem which faces paleontologists and correlators. The subject has come up at various conventions and meetings within the past several months. At the annual convention of the American Asso-

(Continued on Page 30)

Hughes Tool Co. Plant, Started in Corner of a Building, Now Requires Traffic Regulations

By THOMAS F. SMILEY

As you drive through the gateway a sign warns: "Danger. Blow your horn. Speed 8 miles." Applying the brakes you see a second caution: "If you are not familiar with traffic rules, stop for information."

Well, this must be a sort of city by itself.

Right. The plant of the Hughes Tool Co., in the outskirts of Houston, Tex., employs when running full almost 4,500 men—4,478, if you want the exact figures. It covers 72 acres of ground and

COL. R. C. KULDELL
President

its buildings have 17½ acres of floor space. There is about a mile and a half of paved thoroughfare.

A large percentage of the employes drive to work in their cars. Obviously, if a system of traffic and parking regulations were not enforced there would be hopeless confusion, costly delays and frequent accidents.

The man who speeds, ignores the parking rules or otherwise violates the regulations established in the interest of safety finds a tag on his car. It specifies his offense and directs: "You will report to Mr. Rohlf in shop office within three days and explain."

The tagging system was adopted four years ago. The cases of carelessness inevitably found where large numbers of men are involved immediately began to decrease. Probably 95 per cent of the employes had given co-operation from the beginning. The others now had to. They found John Rohlf, head of the personnel department, lenient with thoughless offenders, but firm with those disposed to argue.

All this is merely by way of indicating the marvelous growth of a little business which the late Howard R. Hughes and the late Walter Sharp started in the corner of a building 25 years ago. Other striking things could be pointed out to show this growth; for instance, the volume of business done, the efficiency of the plant layout, the branch offices and warehouses established. The plant commonly is referred to as one of the show places of Houston. But the present purpose is not to dwell on the company's achievements in a business way, but rather to follow the trail back to interesting beginnings of this organization, which is known wherever oil-field appliances are used, and to men whose inventive genius and vision changed the technique of drilling in many oil and gas areas.

Many stories have gained currency regarding the invention of the rock bit and the subsequent organization of the Hughes Tool Co., but the one accepted as authentic is told by Slim Harrison, who saw the original Hughes rock bit used in the Goose Creek Field, was a close friend of Mr. Hughes, heard the story of the bit from Mr. Hughes himself and for 13 years has been in the service of the company.

According to Mr. Harrison—but everybody calls him "Slim"—the invention of the bit was on this wise:

John Wynn, a drilling contractor in the Beaumont Field, had a blacksmith shop in which he made his own screen pipe. After making the perforations with a drill press he would wind wire around the pipe, a screen thus wired being necessary in that field to prevent fine sand from running through the perforations. The procedure followed was first to set a big spool of the wire in a vertical position on the blacksmoth shop floor. The spool, resembling except in size the familiar little spool of the sewing-room, would be held in place by a crowbar thrust through the hole in the center, then through a hole in the floor made for the purpose and then pushed several inches into the ground beneath the floor.

The heavy spool revolved around the crowbar as the wire was paid off onto the pipe. One day as a spool, tilted slightly to one side, turned round and round its grinding action ate into the floor. John Wynn, watching it, thought to himself: "If wood, revolving at an agle like that will eat into wood so, why wouldn't a steel drilling-bit, made to impart the same motion, eat into rock the same way?"

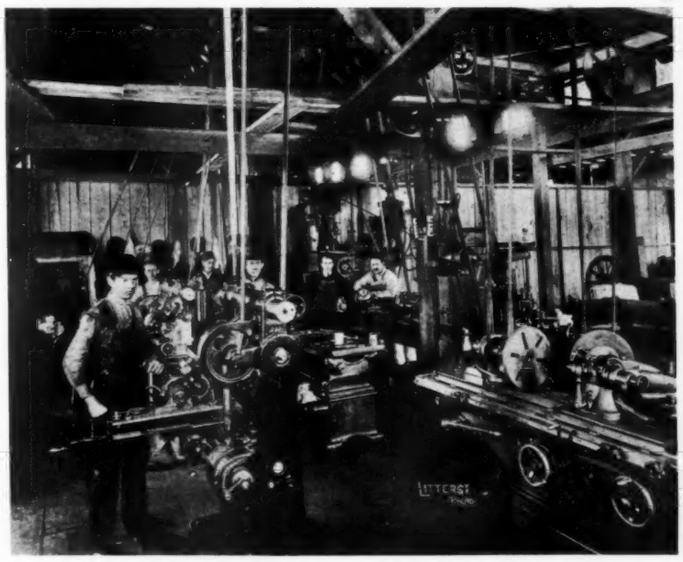
So Mr. Wynn made a diagram of the appliance which he saw in his mind's eye and obtained a patent, but he never developed the bit for actual use in the field.

Walter and James Sharp were drilling contractors under the name of Sharp Brothers at this time, in the summer of 1906. Walter Sharp, a close personal friend of Mr. Hughes, became interested in Wynn's invention, convinced himself that it was destined to solve the problem of drilling through rock formations on which the ordinary fishtail bit made little impression, and bought the patent. Mr. Sharp suggested to Mr. Hughes, then wildcatting in southern Texas, that the latter devote him time to perfecting the new bit, Mr. Sharp agreeing to provide the money necessary. Mr. Hughes, who was known to possess inventive ability and a genius for organization, accepted the suggestion and began experiments with the bit.

At the start the bits used in experimental work were made by a concern in Providence, R. I. In a short time, however, the two men incorporated the Sharp-Hughes Tool Co., with Mr. Sharp owning 51 per cent of the stock and Mr. Hughes 49 per cent, and in July, 1909, they rented a corner in the building of the Houston Car Wheel & Machine Co. They acquired the necessary lathes, drills, milling machines, grinder, etc., and here in a space 20 by 40 feet they began the manufacture of the bits.

Not Much to Look at Then

In the accompanying picture can be seen the high board fence built to separate the bit factory from the rest of the building. A low railing or even a chalk line on the floor might have done just as well but for the fact that experiments were under way constantly with a view of improving the bit, and the solid board partition was erected to keep prying eyes from discovering anything. The six men seen in the picture comprised the working force of the Sharp-Hughes Tool Co. in that period. The second man from the left, standing near the partition in the rear, is M. E. Boehm, now general plant superintendent. He has been with the company continuously.



In this corner of the Houston Car Wheel and Machine Co.'s building in Houston, Tex., the Hughes Tool Co. began manufacturing rock bits in 1909. The high board fence was to prevent prying eyes from watching secret experimental work. The space occupied here was 20x40 feet. Now the plant covers 72 acres of ground

At the end of two years business had increased enough to warrant plant expansion, so it rented more floor space, thereafter reveling in the roominess of 40 by 80 feet. Business continued to increase, and in 1912 the company moved into a two-story brick building 60 by 100 feet. Twelve men now were employed and improvement patents were being obtained from time to time. In 1918 there were 65 men on the pay roll, but it had become clear that the company would have to make plans for a much bigger career than it had dreamed of. So the site of the present plant was purchased and soon afterward construction of buildings began.

Shortly before the company moved into the big new plant the interest originally held by Mr. Sharp, which had undergone several changes of ownership, was acquired by Mr. Hughes, who thus became sole owner of the company, and the name was changed to its present form.

One of the first field tests—perhaps the first—to which the Hughes rock bit was subjected was in a well being drilled by The Texas Company in the Goose Creek Field, Texas. Slim Harrison saw this test. That is to say, he saw as much as anybody was allowed to see. Hard rock had been encountered, so hard that the fishtail was making almost no hole at all, and it was decided to let the Sharp-Hughes Tool Co. show what it could do. Slim was drilling a well on a neighboring lease, but rock was giving him no trouble, so when he saw Howard Hughes; Will Lyne, drilling superintendent for The Texas Company, and Joe Jackson, field man for the same company, drive up in a buckboard and unload a mysterious box he left his own well and went over to see what might happen.

The box, fastened with a padlock, was carried to the derrick floor. All members of the drilling crew were directed to leave after the drill pipe had been pulled and the last double left hanging in the derrick. The fishtail bit then was removed and the new rock bit, taken from its hiding place in the box, was substituted. The pipe was lowered out of sight in the hole. Then the crew returned to the floor and drilling was resumed.

After a half hour or so it was realized something was wrong, for the new bit, in this crucial test, was making no more hole than the old one had. The crew was directed to pull all but the last double and then leave the derrick again. To the consternation of Mr. Hughes it was discovered that the next to the last double was now the last one. What had been the last double, with the precious bit attached to it, was still in the hole. It is there yet, for it was decided quite promptly to drill around it instead of undertaking a long fishing job. The pipe had twisted off.

Better Luck After That

Another bit was made and field tests soon demonstrated its value. The secrecy exercised concerning the first bits was continued with subsequent ones. It is told how a bit would be taken to the well in a burlap bag and the drilling crew sent from the derrick till the bit had been lowered into the hole.

Following the close of the World War a new executive setup was installed by the Hughes Tool Co. While the war was

in progress Mr. Hughes experimented with a boring machine embodying the principle of the cone bit, designed to tunnel under enemy trenches and trench mortars. The change from trench to active warfare is said to have prevented the machine from being put to military use. But in the meantime Mr. Hughes made the acquaintance of Col. R. C. Kuldell, who had graduated from West Point in 1912 and from the Army Engineering School in 1915. Colonel Kuldell served in the U. S. Army till 1920, when he resigned with the rank of lieutenant colonel. He served as department engineer, southern department, with headquarters at San Antonio, Tex., and later as assistant to the chief of engineers in Washington, D. C. After the World War he served on the general staff in Washington, D. C., going to Houston from that city. Soon afterward he joined the Hughes organization as production superintendent, later being made vice president and general manager.

Mr. Hughes died in 1924. His wife had died two years before. Howard R. Hughes, an only son, came into possession of the estate. His interests lay in other directions, so he delegated management of the Hughes Tool Co. business to the organization which his father had built up. Colonel Kuldell was made president of the company and S. P. Brown vice president and sales manager.

Mr. Brown had joined the company as a salesman, later being made manager of sales. He had served in the Aviation Corps in the World War and before that had worked in the oil fields.

Besides Colonel Kuldell as president and Mr. Brown as vice president, the members of the Hughes official family are H. W. Fletcher, chief engineer; C. S. Johnson, secretary-treasurer; and M. E. Boehm, general plant superintendent.

In the course of time the company took up the manufacture of other oil-field appliances, and these now include core bits, cone bits, rock bits, tool joints, valves and fittings and pumping equipment.

In 1925 there were 497 names on the pay roll, 911 in 1926, 1,457 in 1927, 1,847 in 1928, 2,981 in 1929 and 4,478 in 1930, when new peaks were reached throughout the whole oil industry. Service and assembly plants have been established in Los Angeles, Calif.; Midland, Tex., and Oklahoma City, in addition to an export office in New York.

The plant now includes three large machine shops, a toolroom, foundry with a capacity of 50,000 pounds of steel a day, pattern-shop, chemical laboratory, finished storeroom and office building, each with dressing-room and shower. A lunchroom is equipped to accommodate 600 diners. A first-aid room, with trained attendant, handles all minor injuries from accidents. A full-time recreation instructor is employed and there are football, baseball, basketball and tennis teams, which have inter-shop contests besides being in local leagues.

All this has grown from the little plant which started with a floor space of 20 by 40 feet.

Mr. Hughes, who was born in Lancaster, Mo., in 1869, studied at Harvard and then traveled in Europe. Returning to the United States, he studied law. Tiring of that, he worked as a telegraph operator and then as a newspaper reporter for a while. He was drilling test holes for zinc in the Joplin, Mo., region when the Spindletop Field in Texas came in. He went to Beaumont and began operations there and in the Sour Lake Field, accumulating a small fortune, which he lost at Batson when that area suddenly went to water. He was wildcatting in other Gulf Coast fields when his interest in the drilling-bit which now bears his name demanded his entire time and attention.

The generosity and affection which Mr. Hughes manifested to friends and employes have become a tradition in the Gulf Coast territory. Many are the stories told of his meeting men whom he had known as roughnecks in the oil fields in other days and who had encountered adversity. There would be a handshake and "How are you getting along?" When the two parted it was a common thing for Mr. Hughes to thrust something into the other's hand and say, "Here, take this and get yourself shaved and fixed up, and you report for work at my plant tomorrow." The man probably would find himself holding a $50 bill.

President Byles Makes Report on Oil to the Secretary of Commerce

WASHINGTON, D. C., June 5.—Production of oil is now at the rate of 2,900,000 bbls. daily average, of which 200,000 bbls. is "hot" oil, according to a statement made to Secretary of Commerce Roper by Axtell J. Byles, president of the American Petroleum Institute, in answer to the department's inquiry as to the industry's business conditions, employment, etc. The industry has suffered a serious setback during the last two months, Mr. Byles said, because of large overproduction "emanating from breakdown of restrictions in the East Texas Field, which is currently producing 1,000,000 bbls. daily." The daily production, Mr. Byles said, is about 600,000 bbls. in excess of the economic requirements, as a result of which the price structure has collapsed and crude is selling at the lowest price in decades and covers less than half of the average production costs.

"If this continues," added Mr. Byles, "it will cause widespread shutdowns and unemployment in all other producing fields."

The statement explains that no late figures of employment in the industry are available, but the opinion prevails that a substantial majority of those employed at the peak in 1929 are still employed though many on part time.

"The demand for gasoline," the report continued, "and other products is holding at favorable levels and displaying some tendency toward improvement. The statistical position of motor fuel is favorable, total refinery and terminal stocks, including unblended natural gasoline is approximately 58,500,000 bbls., as against approximately 68,800,000 bbls. a year ago.

"Betterment in the industry would become immediately apparent upon rational control of crude oil production, without which further distress is inevitable."

The report was one of a large number received by Secretary Roper in reply to requests.

OKLAHOMA CITY BRANCH
MIDLAND BRANCH
LOS ANGELES BRANCH
MAIN OFFICE AND PLANT
HUGHES TOOL COMPANY
HOUSTON - TEXAS
1 - GENERAL OFFICES
2 - SIMPLEX ROCK BIT DIVISION
3 - VALVES DIVISION
4 - CORE BIT DIVISION
5 - LABORATORY AND RESEARCH
6 - RECEIVING DEPT.
7 - HEAT TREATING DEPT.
8 - TOOL ROOM
9 - FOUNDRY
10 - PATTERN SHOP
11 - FORGE SHOP
12 - TOOL JOINT DIVISION
13 - FINISHED STOCK & SHIPPING DEPT.
14 - ACREAGE RESERVED FOR FUTURE EXPANSION
15 - ATHLETIC FIELD

Successful Syntheses of Thiophanes Will Aid in Study of Objectionable Sulphur Compounds

By R. W. BOST[1] and M. W. CONN[2*]

Thiophane Studies II

The synthesis of trimethylene, tetramethylene, pentamethylene and alpha-methylpentamethylene sulphides.

This paper contains results obtained in an investigation of "The Preparation and Properties of Thiophanes" listed as Project 41 of the American Petroleum Institute Research. Financial assistance in this work was received from a research fund of the American Petroleum Institute donated by John D. Rockefeller. This fund was administered by the Institute with the co-operation of the Central Petroleum Committee of the National Research Council.

In 1906, Mabery and Quayle[3] announced the isolation of a new series of sulphur compounds from Canadian petroleum which they named "Thiophanes." These compounds are cyclic in structure and have the general formula $C_nH_{2n}S$. In 1925 Thierry[4] isolated and identified two members of the thiophane series from Persian petroleum namely, tetramethylene and pentamethylene sulphides.

Properties of Thiophanes

These sulphur compounds are volatile, colorless liquids possessing an extremely penetrating, putrid odor. In general they are lighter than, and insoluble in water. They form stable addition products with mercuric chloride and methyl iodide. Potassium permanganate and 30 per cent hydrogen peroxide give stable sulphones. The above derivatives are easily purified and furnish a suitable method of identification. Bromine and mercuric iodide react to give additional products but the products are unstable.

Pentamethylene sulphide has been studied with refining reagents in naphtha solutions[5]. It was found to be almost completely removed by sulphuric acid, mercuric salts, by refluxing with permanganate, and by washing with sodium hypochlorite. It was removed to some extent by silica gel, by aluminum chloride and by liquid sulphur dioxide. The behavior of other thiophanes with refining reagents are now being studied in this laboratory.

In view of the increasing importance of the organic sulphur compounds and the frequent demands at present for certain members of the "Thiophane" series, it seemed desirable to describe herein a suitable method for their preparation.

Since only fragmentary knowledge concerning the preparation of thiophanes could be gleaned from the literature and many times these sketchy methods could not be duplicated and since considerable time is spent in groping for methods which give higher yields and which can be duplicated, the authors made an extensive study of the action of sodium sulphide on dihalogen compounds. It was found that the time of heating, the rate of addition of the halides, the quality and concentration of sodium sulphide used, and the rate of distillation of the sulphide are vital factors in obtaining good yields of the sulphides. A more detailed discussion of these factors will appear in another article. In this article will be described the detailed methods which we have found to be most satisfactory in the preparation of the thiophanes given.

Materials

The trimethylene chloride was obtained from the Eastman Kodak Co. It was redistilled immediately before each run, using a Glinsky column. The tetramethylene dibromide was prepared by the method of Marvel and Tannenbaum[6] as shown by the following series of reactions: Y-phenoxypropyl bromide $\xrightarrow{KCN}$ y-phenoxypropyl cyanide $\xrightarrow[H_2SO_4]{C_2H_5OH}$ ethyl y-phenoxybutyrate $\xrightarrow[C_2H_5OH]{Na}$ y-phenoxybutyl alcohol $\xrightarrow{48\%\ H\,Br}$ tetramethylene dibromide, B.P. 82-85° at 18 mm. The latter dibromide may be prepared by reducing ethyl succinate by the Bouveault-Blanc Method[7] to tetramethylene glycol and converting the latter into the dibromide by means of 48 per cent hydrobromic acid. Tetramethylene dibromide may also be prepared by the method of Braun[8], who split benzoyl pyrrolidine with phosphorus pentabromide. The pentamethylene dichloride was obtained by distilling benzoyl piperdine with phosphorus pentachloride. The dichloride is a colorless liquid boiling at 64-66° at 10 mm. The 1, 5-dibromhexane was prepared by the method of Lipp[9], Perkin[10,11], and Freer and Perkin[12]. It is a colorless liquid boiling at 153-4° at 100 mm. Best results were obtained by using sodium sulphide as prepared below.

Apparatus

The apparatus used in the preparation of the sulphide consisted of a 3-neck balloon flask fitted with a dropping funnel, mechanical stirrer and a 48-inch condenser with indented tube. The top of the condenser was connected with a tube containing mercuric chloride to catch any sulphide that might escape. Slightly better results were obtained when ice water was passed through the condenser during the preparation. The distillation of the ether extracts was carried out in a balloon flask, using a 36-inch Hempel Column and a 48-inch vertical condenser fitted with an ice-cooled receiver which in turn was connected with a trap containing mercuric chloride.

Anhydrous Sodium Sulphide

In a balloon flask fitted with a reflux condenser and a dropping funnel (A) was placed one-half the calculated amount of clean dry metallic sodium to form the required amount of sodium sulphide for the given preparation. An equal amount of sodium was placed in a similar apparatus (B). The flasks were cooled with a freezing mixture and the absolute alcohol added gradually through the dropping funnel (20 ml. of absolute alcohol per gram of sodium seemed to work very well). Enough alcohol should be added to keep the sodium sulphide (which will be formed) in solution, but it is also desirable to use as small an amount as possible in order to make the final extractions of the thiophane easier.

The solution of sodium ethylate in apparatus (A) was then saturated with dry hydrogen sulphide (five to eight hours, depending upon the amount of sodium used). After no more gas was absorbed, the sodium ethylate in apparatus (B) was added to the alcoholic solution of sodium hydrosulphide in apparatus (A), taking care to remove all the sodium ethylate in (B) by rinsing several times with absolute alcohol. The mixture was gently refluxed on a steam bath for 30 minutes and allowed to cool. At this point, the sodium sulphide formed in the reaction should be in solution in the alcohol. During the entire procedure the reaction mixture is protected from the air by a calcium chloride and soda lime mixture.

Trimethylene Sulphide

One mole of anyhdrous sodium sulphide dissolved in absolute alcohol was prepared as described above. To this was added one mole of trimethylene chloride dissolved in its own volume of absolute alcohol. The addition of the chloride required about two hours, during which time the mixture was vigorously stirred with a mechanical stirrer. When all the halide had been added, the reaction mixture was gently heated under reflux on a steam bath for eight hours with gentle stirring. The reacting mixture was cooled and transferred to a separatory funnel and diluted with two liters of a cold 20 per cent sodium chloride solution, and vigorously shaken. The sulphide was extracted with several 200 ml. portions of freshly distilled petroleum ether, B.P. 30-40°. The ether extracts were combined, dried over anhydrous sodium sulphate for 24 hours and distilled from a steam bath in an apparatus described above. When the temperature during the distillation reached 60°, the distillation was stopped, and the residue transferred to a 500 ml. balloon flask, the distillate was subjected to two more distillations as described and the residue in the flask after each distillation added to the 500 ml. flask.

The 500 ml. flask containing the sulphide concentrate was fitted with a Glinsky column and carefully fractionated with a low flame. The fractions boiling at 80-90° and 90-100° were finally fractionated in a Claisen flask. B.P. of sulphide 93-95°. Yield 22 grams or 30 per cent of theory.

Tetramethylene Sulphide

Fifty-one grams of tetramethylene bromide dissolved in an equal volume of anhydrous alcohol was solwly added, with stirring, to the calculated amount of alcoholic sodium sulphide prepared in the usual manner. The addition required about one hour. In a short time the solution began to boil by the heat of reaction with the simultaneous formation of a precipitate in the tube containing the mercuric chloride. When all the bromide had been added, the reaction product was heated gently on the steam bath, with gentle stirring for five hours. The reaction mixture was allowed to cool, then transferred to a separatory funnel and diluted with 1.5 liters of a cold 20 per cent sodium chloride solution. The sulphide was extracted with several 200 ml. portions of freshly distilled petroleum ether, B.P. 30-40° and dried for 24 hours over anhydrous sodium sulphate. The ether was distilled from a steam bath using Glinsky column. When the temperature reached 70° the residue was transferred to a Claisen flask with indented side-arm and slowly distilled. The pure sulphide boiled at 119°. Yield 8.8 grams, or 42 per cent of theory.

Pentamethylene Sulphide

One hundred twenty-five grams of pentamethylene chloride dissolved in an equal volume of anhydrous alcohol was added to the calculated amount of anhydrous alcoholic sodium sulphide with vigorous stirring. Addition of the chloride required about two hours. The mixture was then refluxed gently on the steam bath for eight hours, with gently stirring. The reaction product was cooled, and diluted with 2 volumes of a cold 20 per cent sodium chloride solution. The sulphide was then extracted with several 200 ml. portions of petroleum ether, B.P. 30-40°, allowed to stand for 24 hours with anhydrous sodium sulphate and the ether removed from a steam bath. The sulphide was fractionated in a Claisen flask with an indented side-arm. B.P. of sulphide 141°. Yield 45.3 grams, or 50.3 per cent of theory.

Alpha-Methyl Pentamethylene Sulphide

One hundred thirty-two grams of 1, 5-dibromhexane dissolved in an equal volume of anhydrous alcohol was added to the calculated amount of anhydrous alcoholic sodium sulphide as described above. The addition required about two hours, the mixture being stirred vigorously during this time. The reaction mixture was gently refluxed on a steam bath for five hours with gentle stirring. The reaction mixture was cooled, diluted with 2 volumes of cold 20 per cent sodium chloride solution and extracted with several 200 ml. portions of petroleum ether, N.P. 30-40°. The sulphide was dried and distilled in a manner analogous to pentamethylene sulphide. B.P. of sulphide 154-6°. Yield 40 grams, or 30 per cent of theory.

Summary

A conveninent method is given for the preparation of trimethylene, tetramethylene and alpha-methy pentamethylene sulphides.

*Contribution from the Chemical Laboratory of the University of North Carolina.
[1]Director of Project 41.
[2]American Petroleum Institute Research Fellow.
[3]Mabery and Quayle, Am. Chem. J., 35, 404 (1906).
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[9]Ber., 19, 2,230 (1885).
[10]Ber., 16, 206 and 1,787 (1883). Ibid, 19, 2,057 (1886).
[11]J. Chem. Soc. 51, 722 (1887).
[12]J. Chem. Soc. 53, 205 (1888).

West Texas Allowables for June Are Announced

MIDLAND, Tex., June 3.—W. R. Bowden, deputy supervisor of the oil and gas division of the Texas Railroad Commission, has announced the West Texas allowables in June in prorated fields.

In the Chalk, Roberts, Phillips and Coffee areas in Howard and Glasscock Counties the 1,800 and 1,800-foot areas are allowed 10 bbls. per day per well, plus potential allowance. The 2,200 2,300 and 3,000-foot wells are allowed 20 bbls. per day, plus potential allowance. The rated potential of this general area is put at 102,203 bbls. per day from 533 wells and the allowable is 16,000 bbls. per day.

The Yates Pool in Pecos County is given an allowable of 60,452 bbls. per day during June. There are 408 producing wells in the field.

Ector County, with 54 producing wells, is allowed a daily average production of 4,000 bbls.

Winkler County, with 429 oil wells, may produce 22,000 bbls. per day under the order.

There are 500 oil wells in the Crane-Upton County Field and they are given an allowable of 12,000 bbls. per day.

When the Independent Refiner Made the Crude Oil Market With Generous Premium Prices

By JAMES McINTYRE

In these days when a few misguided oil producers are willing to trade a barrel of crude oil for a cheese sandwich, and willing to break the law to do it, it seems a long time since producers were holding back for premiums over the posted price of crude.

Today we have the sad spectacle of owners of oil wells, many of them with no background of oil country experience, sacrificing one of earth's most precious products; and throwing away all chances of becoming rich in order to peg along in a hand-to-mouth way from day to day, selling for 10 or 15 cents a commodity that could just as well sell for $1 a barrel.

Sixteen years ago, when Kansas had just begun to take its place in the oil world as a large producing area; when oil men were beginning to wonder if Oklahoma's oil possibilities had been thoroughly exploited; when there was little oil known in Texas outside of the Gulf Coast and the Wichita Falls district and not a great deal of it in either area, there began a period of greatly increased demand for crude oil, with not enough production to satisfy the demand. Even the big Towanda discovery in Butler County, Kansas, with 1,000-bbl. wells coming in almost daily and with now and then a 5,000 or a 10,000-bbl. well added to the completions failed to bring the supply up to the demand.

Then began the payment of premium prices on a large scale. It started with 10 cents over the posted price. It rose to $1.50-per-barrel premium in one field in Oklahoma. The very high-grade oil in Garber, Garfield County, Oklahoma, sold as high as $5 per barrel. The Sinclair Oil & Gas Co. owned the bulk of the Garber production, and received upwards of $4.50 per barrel for it when the flat posted price in the state was $3.50. Waite Phillips was paid a fortune in premiums on the high-gravity Wilcox sand oil he produced in Section 23-14-11, in Okmulgee County, Oklahoma. At one time it was reported that his production of 12,000 bbls. per day in that pool brought him $48,000 a day, the price having been 50 cents per barrel above the regular market price of $3.50. This was when the pool was at its peak.

When "Oil Is Oil"

Before the Prairie Oil & Gas Co. reinstituted the system of posting on a gravity basis, a flat price was paid. The theory was that oil is oil, but with the steadily increasing demand for crude oil of high gasoline content contemporaneous with the high-gravity Wilcox sand oil discoveries, independent refiners began to demand oil above 38 gravity, and especially 40 gravity and over. They were willing to pay more for a better material and they did so in such a persistent manner that the Prairie, Texas, Humble, Gulf and Magnolia companies adopted the graduated scale of prices, putting a premium on the higher grades. Many of the larger companies that are now posting prices did not do so in those days. The Carter Oil Co., Roxana Petroleum Corp. (Shell) or the Mid-Continent Petroleum Corp., did not post prices. Neither did Barnsdall, Skelly, Marland, Derby, White Eagle, Empire nor many other companies that are now buying on a posted price basis. Some of these companies paid for oil on the schedule posted by the Prairie Oil & Gas Co., but others went out into the market and bought oil at their own prices, and independent refiners have told the writer that they made more money when they were paying 25-cent and 50-cent premiums than they have ever made since.

It is the common belief that the "big companies" make the crude market prices. It used to be said that the South Penn Oil Co. in the east, the Ohio Oil Co. in the Middle West and the Prairie Oil & Gas Co. in Kansas and Oklahoma "made" the crude market. The facts do not show this to be true. The independent refiner really made the crude market. When the supply of oil began to tighten he was the first to feel the effect of it and he promptly went out after new connections, freely offering a premium. At first it was 10 cents per barrel. Then the premium price rose as the scramble for crude became more general, and the "big" buyers began losing connections, with the threat of losing more if the premium price were not met. This forced the posted price upward and kept forcing it upward until new discoveries of oil brought the supply equal to or above the demand, whereupon the independents promptly eased off on premiums, and it must be said of many producers that when there was no premium they asked to be taken back into the fold of the Prairie, or the Gulf, The Texas, the Humble or the Magnolia. Just why this was so, we have never been able to learn, but it was true of many of them. Then it was that the posted price fell off until the crude market again began to feel the pinch of an undersupply, and the "little fellows" again busied themselves canvassing for crude at premium prices. It was so in the East, in the old Central West and in the Mid-Continent. The independent refiner, and not the "big fellows," dictated the crude prices.

From old files of telegrams we have extracted a partial chronological account of what occurred in some of the years when premium prices were paid for oil. They were the best days of the oil industry. Producers, refiners and marketers made money. Banking and general commercial business in every American oil-producing region felt the prosperity. Wages and salaries were good. Money was plentiful.

A telegram received September 19, 1921, says: "Premium situation in North Central Texas is very strong. Three thousand barrels of spot oil sold at 45 cents above the posted price and a contract was made on a six-month basis at 35 and 40 cents premium by several companies, and all are fighting for any oil they can get."

Three days later our correspondent in that area wired: "Pierce Oil Corp. representative is in the North Texas Field buying oil for delivery to Texas Pipe Line at Fort Worth at 35 cents above posted market price. Brokers advertise in Wichita Falls newspaper they would pay 30 cents above the market price."

With the crude market fallen to $1.25 per barrel for all grades there were some purchasers still offering premiums. One Oklahoma producer wrote in to the company connected to his wells protesting that 38 and 39 gravity oil should command a higher price and that he had been offered a premium. He wanted to know what the company was going to do about it.

A telegram on November 10, 1921, said: "Buyer said to be representing the Atlantic Refining Co. is offering to pay North Texas producers 25 cents per barrel premium on one year contracts and to advance them the entire amount of the premium. This means that if the producer sells the buyer 500 bbls. per day at 25 cents per barrel premium he will receive $125 per day premium or $45,000 for the year. It means that the producer could go out and buy property, contract it to the buying concern, and get practically the price of the lease in premiums. His daily runs would be paid him at the market price as run. Two producing firms who were approached have confirmed this report." Later a producing firm reported that the purchaser wanted 1,000 bbls. per day and that it would put up $45,000 upon signing the contract and $45,000 more premium at the end of 60 days.

November 16: "Pierce-Fordyce Co. is dickering for oil in the Healdton Field in Oklahoma at 25 cents premium. Premiums are being offered in Okmulgee County for oil of 38 gravity and upward."

In the spring of 1922, with a posted price of $2 in Kansas and Oklahoma and $2.25 in North Texas, 5, 8 and 10-cent premiums were being offered in the Burkburnett Field in Wichita County on one-year contracts and some 25 and 30-cent premiums were being offered by small refiners. At the same time the Allied Refining Co., Meridian Refining Co., Empire Refining Co. and Indiahoma Refining Co. were paying 25-cent premiums in Okmulgee County, Oklahoma, and The Shaffer Refining Co. was paying as high as 50 cents premium for high-grade oil. The Pierce Oil Corp. was paying from 25 to 35 cents premium in the same county. The market fell off in the last half of the year and premiums ceased.

Premiums in 1923

The posted price for Mid-Continent crude on January 1, 1923, was 90 cents to $1.80 per barrel, with 36 gravity at $1.40. The market was stiffening, and 2o cents, and as high as 37½ cents, premium was offered for crude in Kansas, Oklahoma and North Texas. By the end of February the market had been advanced 60 cents per barrel in six 10-cent increases.

March 7, 1923, Lubrite Refining Co. was reported paying 25 cents premium for Tonkawa, Okla., crude. Garber crude was commanding a 25-cent premium. The market fell off, commencing April 23, 1923, in 10-cent cuts, and in June the Prairie announced it would prorate runs. By the end of the year the graduated posted price was 75 cents, $1 and $1.25, with 36 gravity at $1, and there is no record of premiums meanwhile.

The Scramble in 1924

January 11, 1924, following an advance in posted prices of 15 cents for 36 gravity crude, Skelly Oil Co. was offered 50 cents premium, or $2 per barrel, for high-gravity oil in the Slick district, Oklahoma. On January 24, 1924, with the market ranging from $1.15 to $1.75 per barrel, Champlin Refining Co. paid 50 cents premium or $2.25 per barrel in Tonkawa, Billings and Garber (all above 40 degrees); Marland Refining Co. posted 15 cents premium for 42 gravity and over; Bolene, $2.24 per barrel for Garber crude; Empire, 25 cents premium in Burbank, Okla.; Vacuum, 20 cents premium in Burbank; Pierce, 10 cents premium in Turkey Mountain, Okla.; Atlantic, 10 cents premium in Graham, Okla.; British American paid Dixie Oil Co. 10 cents premium for a batch of oil; 25-cent premiums were being paid in Duncan, Okla.; Hewitt, Okla. and North Texas; 10 cents in Greenwood, Kans.; 50

(Continued on Page 78)

Refining Used to Be One Bad Smell After Another, But Now Look

By A. P. EYE

Correspondent Extraordinary

CHICAGO, June 5.—The oil business was one bad smell after another for the refiner until the chemist went to his rescue, according to C. R. Wagner, chief chemist for the Pure Oil Co., who was interviewed here today while he was hurrying back from lunch to his laboratory to see that a 16-hour lamp test didn't overrun its time.

A dead cat on a July afternoon was a nosegay of dew-misted lilies-of-the-valley by comparison with the reek that rolled from a refinery handling Lima crude in the eighties, Mr. Wagner explained. The stillman had to work with one hand, the other being occupied holding his nose.

Among earth's areas of high odoriferosity the refinery operating on Ohio crude held undisputed first place for a time. Then West Virginia, Indiana, California, Arkansas, Wyoming and Texas dignifiedly but firmly demanded recognition. In the judgment of unprejudiced, discriminating noses Crane County, Texas, was entitled to the asafetida sweepstakes. It is told that a polecat approached a refinery handling Crane County crude, caught a whiff from the still, stood for a moment in trembling amazement and then, realizing it had lost the championship, crawled under a cactus and died of a broken heart.

In dealing with the problem they tried psychology and mental healing at first. They said not to mind. It was only mercaptans. Mercaptans, it was patiently explained to the uneducated, were any of a series of compounds of the general formula RSH, analogous to the alcohols, but containing sulphur in place of oxygen, and hence called also thioalcohols.

That helped greatly, but it left Mr. Wagner, who never was one for half-way measures, unsatisfied, so he joined other chemists in a crusade to make the world safe for deep breathers.

"And we've got it licked," declared Mr. Wagner. If the improvement keeps on our refineries will be so fragrant that folk will come to visit them and sniff around as they do in conservatories."

No headway ever was made in the effort to get refinery workers to use such words as "mercaptan" and "thioalcohol." With fine directness and capacity for concise expression they still call it "skunk."

Whether dollar value is going down or not, we know commodity prices are going up

Steel is stronger—building materials are firmer—the trend is upward

Now is the time to build Dubbs cracking units—before costs go higher
Dollars invested in Dubbs cracking units now will earn more than dollars lying idle

Dubbs cracking makes the biggest yield of the best anti-knock gasoline from any charging stock at lowest cost—royalty and all

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Universal Oil Products Co
Chicago Illinois

Dubbs Cracking Process
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Comparative Data on Bottom Hole Pressures and Diameter of Flow Strings in Seminole Pool

By S. F. SHAW
Consulting Engineer, San Antonio, Tex.

A study of bottom hole flowing pressures in the Seminole Field in connection with gas-lift operations has been carried on since early in 1927. Tests were made at frequent intervals to determine the maximum daily productive rate through the tubing or casing that happened to be in each of the gas-lift wells. These tests included determination of daily production at various rates of flow, flowing pressures, quantity of input and of output gas. During the progress of this work, tests were made on wells flowing through 3-inch and 4-inch tubing, and through the annular spaces between 5½-inch and 2-inch tubing; between 6⅝-inch casing and 2½-inch tubing; between 8¼-inch casing and 3-inch tubing; and between 8¼-inch casing and 4-inch tubing.

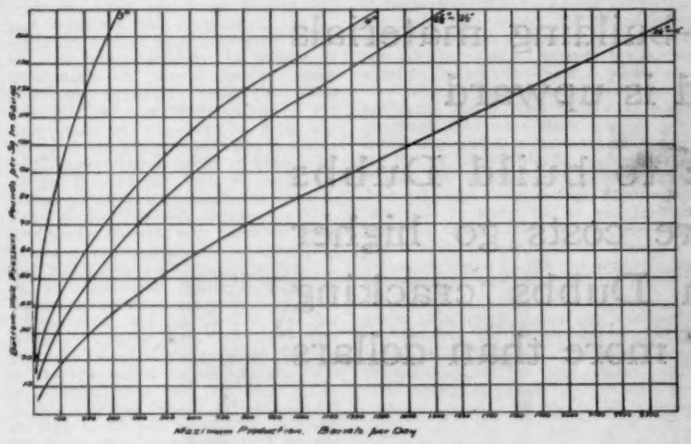

Figure 1

It was found that the maximum daily production within certain limits is dependent on the diameter of the flow string, especially in the early life of the well. The maximum daily production that could be made through a casing of 6⅝-inch diameter at any time was more than the maximum daily production that could be made through 3-inch or 4-inch tubing, and less than that which could be made through a casing of 8¼-inch diameter.

Pressures and Diameters

The average gauge pressures at the bottom of the tubing when flowing at maximum capacity through various sizes of pipe diameters, which included several thousand determinations, are shown in graphs in Figure 1. The tubing in practically all cases was suspended close to the bottom of the hole, consequently all pressure readings were practically bottom hole pressures. It was found, for example, when a well was being flowed at maximum capacity through 4-inch tubing at the rate of 500 bbls. per day, that the pressure at the bottom of the tubing averaged 95 pounds per square inch. When the well was being flowed at maximum capacity of 500 bbls. per day through the annular space between 8¼-inch casing and 4-inch tubing, the flowing gauge pressure at the bottom of the 4-inch tubing was 52 pounds per square inch.

In Figure 1 it will be observed that the smaller the diameter of the flow pipe, the greater will be the flowing pressure at the bottom of the tubing required to lift the oil at a given rate of production. For example, with bottom hole pressure of 100 pounds it was possible to lift a maximum of 130 bbls. per day through 3-inch tubing, while with the same bottom hole flowing pressure it was possible to lift 1,420 bbls. per day through the annular space between a casing of 8¼-inch diameter and a 4-inch tubing.

It may be well to explain that throughout this article, bottom hole flowing pressures are to be understood as having no reference to reservoir pressures. Bottom hole pressures are equivalent to reservoir pressures only after a well is closed in for a sufficient length of time to permit equalization of pressures throughout the drainage area of the well.

Maximum production refers only to the daily productive rate, and not to ultimate recovery. Also it should be stated that gas-oil ratios are not involved in any way in this article.

As the maximum capacity of the well declines, it may be observed that the curves for flowing pressures converge for the different diameters of pipe. In actual practice it was found that there was little difference in the bottom hole flowing pressure when the maximum capacity of the well had declined to a point between 100 and 200 bbls. per day, whether the oil be flowed through 4-inch tubing, or whether it be flowed through the annular space between 6⅝-inch casing and 2½-inch upset tubing.

These graphs will apply only to wells having depths of approximately 4,000 feet and to oil having the same physical properties as the oil in the Seminole Field. Observations made in other fields indicate that with heavier and more viscous oils, and with greater depths of wells, similar graphs are raised above those shown in Figure 1. On the other hand, with lesser depths and with lighter oils, the graphs will be depressed below those shown in Figure 1.

Effect of Increasing Back Pressures

Tests were made from time to time to observe the effect of back pressures on the maximum daily capacity of the wells when provided with different diameters of tubing. An illustration is shown in Figure 2, in which a test was made on a well provided with 6⅝-inch casing and 2½-inch upset tubing, with the flow taking place through the annular space. The graph DAE indicates the average bottom hole flowing pressures for this diameter of flow pipe when the well was produced at a given maximum daily rate. At this period in the life of the well when the maximum daily production through the 6⅝-inch casing was 1,025 bbls. per day, a test was made by applying different back pressures at the well head and then noting the maximum quantity that could be produced under these different conditions, and also noting the bottom hole flowing pressures. The curve BAC, Figure 2, illustrates an actual case of the relation between bottom hole flowing pressures and the maximum daily production under these back pressure conditions.

Thus, with bottom hole pressure of 120 pounds, the maximum capacity was 1,025 bbls. per day. When a back pressure was applied at the well head such that the maximum daily production was 585 bbls. per day, the bottom hole flowing gauge pressure was found to be 230 pounds. The test was not carried to the point where a back pressure was applied at the well head sufficient to stop all flow from the well, that is, to the pressure equal to the reservoir pressure, but extension of the curve to B, on log-log cross section paper, would appear to indicate that there would be no flow when the bottom hole pressure had reached approximately 315 pounds per square inch. Obviously it was impossible to lower the flowing pressure below the point A in this case, when flowing through the annular space between 6⅝-inch casing and 2½-inch tubing, otherwise there would have been an increase in production, in which case the point A would not have represented the point of maximum production. If a casing of 8¼ inches were substituted for the 6⅝-inch casing, the maximum daily productive rate would be greater than that represented by point A.

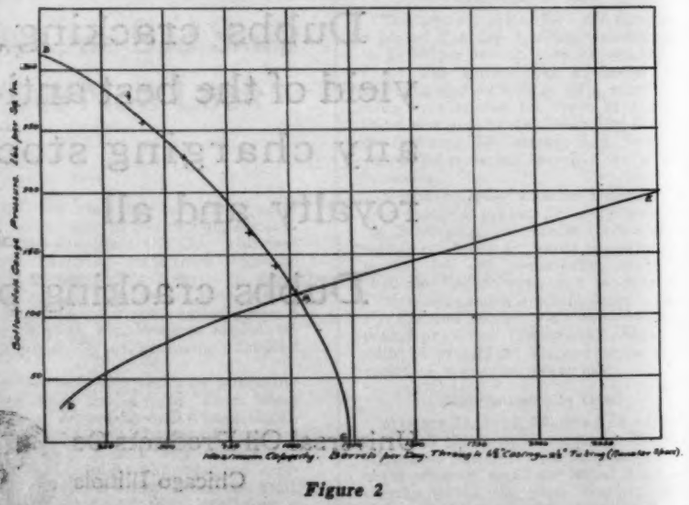

Figure 2

Tests were made in wells in which 4-inch tubing was run in casing of 8¼-inch diameter, and similar observations were made while flowing through the 4-inch tubing, after which the flow was reversed through the annular space, and it was observed that the reduced bottom hole pressure that could be obtained through the 8¼-inch casing resulted in a higher maximum productive rate than when producing through the 4-inch tubing. These observations gave reason for extending the curve downward from A to C, although points were not actually observed on this extension.

Maximum Production Pressure

There is usually found to be a point of bottom hole pressure, or of liquid level at a certain distance above the sand, which allows the maximum daily production to be obtained. Lowering the liquid level below this point does not result in increased production[1,2]. Such points can be found in large gas-lift wells which have been newly completed, by raising the tubing from the bottom of the well to a point that determines this critical point. In a well newly completed in the Bristow Field, it was found that the maximum daily production through 3,000 feet of 6⅝-inch casing was 950 bbls. per day. The tubing was raised to the 1,800-foot point below the surface, and the daily maximum production remained at 950 bbls. per day. Observations were made of pressures as of the bottom of the tubing in both cases, and it was found that when the tubing was suspended at 1,800 feet, the flowing pressure at the bottom of the tubing was 43 pounds. With the tubing suspended at 3,000 feet, the production remained unchanged, but the bottom hole flowing pressure was 103 pounds. It seems reasonable to suppose that the 1,200 feet of fluid difference in the two cases would make for a greater increase of pressure than the difference between 43 pounds and 103 pounds. Various other tests have indicated that in most wells a critical flowing pressure, if such it might be called, is reached, below which there will be no increase in the production of oil if there be no change in the casing and tubing diameters. This idea is represented graphically in the curve between the points A and C, in Figure 2.

Various deductions can be drawn from the construction of such bottom hole flowing pressure graphs. One such inference is that with certain installations of casing and tubing diameters, the bottom hole flowing pressure cannot be lowered below a certain point, and, therefore,

(Continued on Page 30)

[1]W. V. Viotti, discussion "Reservoir Pressures in the Hobbs Field, New Mexico," Trans. A.I.M.E. Vol. 98 (1932), p. 350.
[2]D. Nix, discussion of paper "Reservoir Pressure in the Hobbs Field, New Mexico," same reference as above, p. 351.

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New Deal in Marketing

Certain developments affecting widely scattered areas over the past month indicate that the oil industry is to have a new deal in marketing of a permanent nature.

Like Mark Twain and the weather there has been a lot of talk about needed reforms in marketing practices in the oil industry but nothing has been done about it.

We are now past the talking stage and at the start of a definite policy for ironing out difficulties that should never have been allowed to develop.

The fact that the remedy has been postponed so long as it has been calls for strong medicine which many patients are going to find unpleasant to take.

Briefly summarized, the marketing branch of the oil business is going to be made to stand on its own feet and not look to the crude oil, refining and transportation divisions to make up for its failings.

For a long period the sale of petroleum products, particularly gasoline, was dominated by the thought that it was merely a necessary method for getting rid of so much crude oil in the form of finished products, and those engaged in the business looked to profits from the production of the raw material and manufacturing operations to make up for the losses in the marketing end and to give an over-all profit on the entire operation.

But with 25 cents a barrel for crude at the well and two cents a gallon for gasoline at the refinery it is apparent that these two branches of the industry will do well if they take care of themselves.

Certainly there are no indications at this time that there are going to be any surplus profits in these divisions to make up for losses which everyone now appears to concede have always been wrong.

With the development of more prosperous times those charged with the responsibility of distribution of products after they had left the refineries adopted a policy of what amounted to guaranteeing profits to wholesalers and retailers. In tank car sales they guaranteed the jobber a margin sufficient to cover all of his costs plus profit. The same policy was adopted for dealer accounts, regardless of whether there was any profit to the oil industry in the operation.

The results of this policy, which was unique in the oil industry among all major industries, were inevitable.

As more and more companies strove for volume of business margins were widened which in turn attracted newcomers into the business and large duplication of facilities naturally followed.

The more the oil business lost the more they gave to dealers.

As prices have gone down, margins have gone up. The two lines on the graph have been getting farther away from each other.

The industry cannot prosper, cannot, indeed, continue, unless they are brought into reasonable relationship.

The whole trend has been wrong. The whole idea has been false.

Oil is not something to be got rid of because some times it is too cheaply produced. It is an irreplaceable resource that is worth from any standpoint, whether cost of discovery and production, manufacturing costs, or value to the consumer, far more than what it has been selling for.

Gasoline as the principal product of one of the largest industries in the world should represent a profit and not a loss to that industry.

But owing to the mistakes and methods described that is not so today.

It was, indeed, inevitable this situation should become topheavy.

Conditions became more critical with the increase in gasoline taxes and the advent of bootleg crude.

Gasoline coming from these illegal sources, from those who evaded the tax on motor fuel and from those who violated proration laws, could easily undersell legitimate operators and still have a profit.

The remedy is as apparent as the disease.

Certain major units, with the support of the large majority of their competitors, both large and small, have already taken the initial step to bring order where disorder has been the rule for over a year.

The margins covering cost plus profit, which for some time have been much greater than manufacturer's prices, should be reduced.

Unless all signs fail they will be reduced to a point where those operating tank wagons and pumps at service stations can no longer have a spread that can be used to make deals of one kind or another in the effort to increase the volume of their business at the expense of the industry.

The tank car market as established in different areas under open competitive conditions is to be the basis for all markets, including crude oil as well as the consumers' market.

This is not in any sense of the word an attack on legitimate operators engaged in any phase of operations.

The legitimate jobber and dealer is not getting anywhere with wide margins as he has found out.

It has simply meant more competitors, reduced volume and cut price markets so that the net return was less in many cases than when the spread was half what it has been.

This new policy obviously may mean elimination of some of those who have no real place in the industry. It may mean doing away with some of the excrescences in marketing practices common to everybody connected with the business.

But it will return to the oil industry ultimately the profit on its operations to which it is justly entitled from its consumer prices.

It will form a basis upon which the industry can build a stable structure so that when prices are advanced the crude oil and refining branches can retain the benefits without risk of their being nullified by unethical and wasteful merchandising methods in marketing.

When an industry reaches a stage where marketers not only give away its product but actually pay dealers to take it from them the bottom has been touched.

The bulk of the industry should meet the price cutters who deal in secret rebates and special discounts on their own ground and announce that hereafter the regular price for crude and products will be based on the lowest price quoted by any single competitor.

One such general demonstration of the limits of profitless price cutting, coupled with the conviction that it would be instantly repeated when necessary, ought to make the oil business safe for legitimate operators which it has not been since tax evasion and bootleg crude have been fixing prices.

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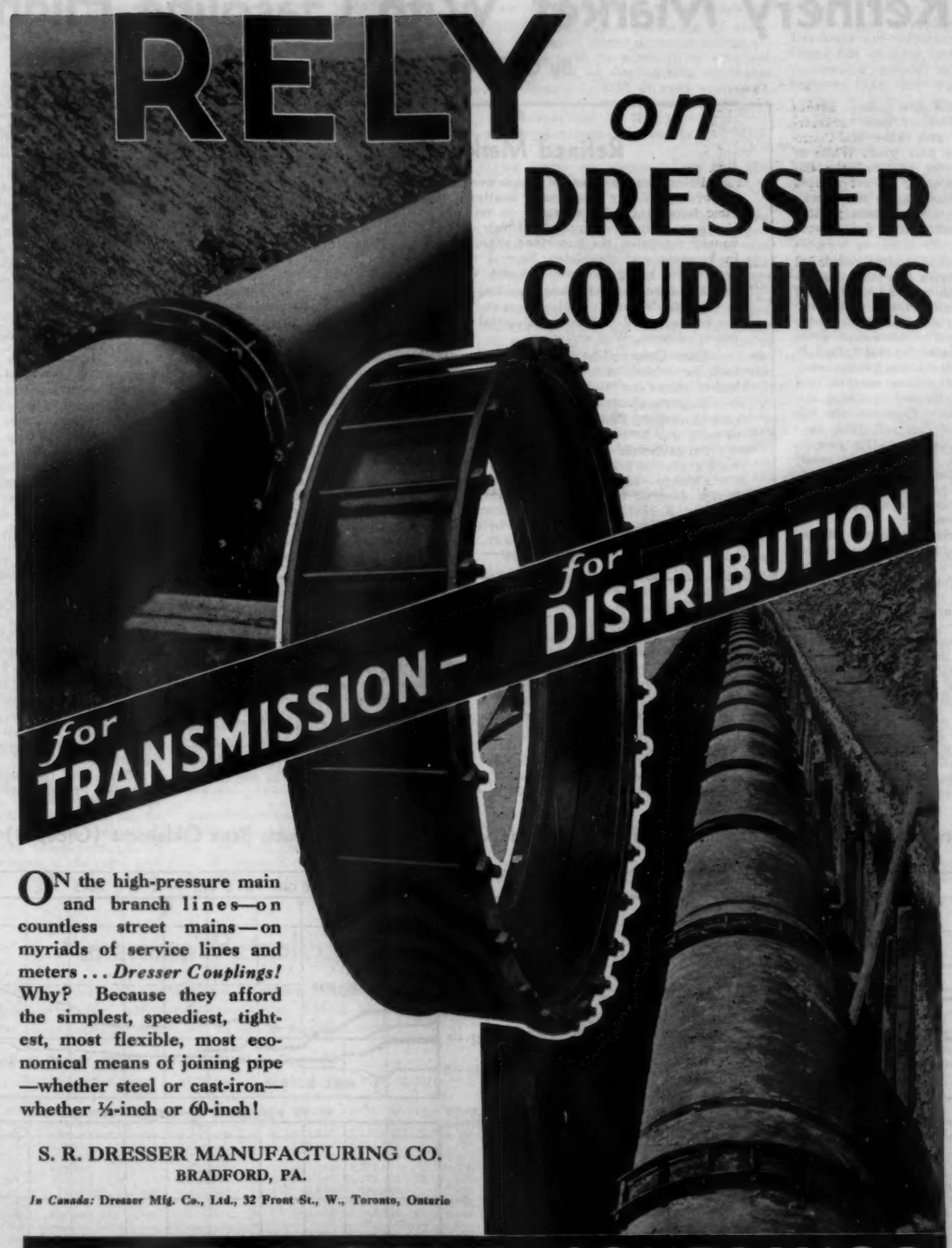

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Slight Improvement of General Nature in Group 3 Refinery Market With Gasoline Higher

By C. O. WILLSON

Some improvement of a general nature was apparent in refinery tank car markets in Oklahoma and other Mid-Continent areas over the past week. While as one veteran marketer observed the improvement "was nothing to get excited about," it was encouraging to sellers who were hopeful that developments pointed definitely to higher prices for several products.

The refinery gasoline market responded to improved spot buying and limited offerings with one-eighth cent advance in all quotations. Although price ranges were unchanged kerosene and distillates which recently have shown a downward price tendency, were more active and little material of the distress variety was being offered in the Mid-Continent market. Gas oils are in strong demand in Oklahoma and there were more inquiries for the industrial grades of fuel oils. The supplies of the latter as shown by government stock figures, are relatively small in Oklahoma and Kansas and any pickup in demand due to greater industrial activity could easily result in a strong market and higher prices.

Among the lubricants, bright stocks were advanced an additional three-fourths cent during the week establishing a price of 17¾ cents for the zero to 10, 150-160 grade exclusive of tax. Those in touch with this market are predicting steady advances until a 20-cent level is reached.

Natural gasolines continue on the weak side of the market. Sales as low as three-fourths cent per gallon or 32 cents per barrel were reported during the week for the 26-70 grade. This low priced material was due in part to freight rate differentials and the sellers generally were maintaining a low of 1 cent per gallon in both Oklahoma and Texas.

The better tone in the tank car markets apparently is entirely due to a tighter crude oil market in several refining centers of the Mid-Continent. As explained in these columns last week many refiners at scattered points in the Mid-Continent and Middle West desire more crude than they have been able to obtain from nearby fields. Some of the major crude oil buyers moving large quantities of crude oil north by pipe line have also been drawing on storage not being able to buy sufficient crude oil currently to take care of their requirements. Some of these buyers are anxious to fill storage which has been depleted steadily over the past two years.

A substantial part of the spot gasoline buying of the past week has come from refiners in Oklahoma and Kansas who have been unable to secure sufficient crude oil and are operating their plants part capacity. Not having the gasoline to take care of their orders they have been compelled to buy from other refiners. The buyers of the past week included one major refiner who has plants in Oklahoma and Kansas.

Refined Market Barometer

Price advances, some of which were of a substantial nature, materialized in several refinery products at scattered points during the past week. The most important price advances on refinery gasolines were in the East and the same situation applied to lubricants. Bright stock prices were advanced generally. No important changes of a general nature were reported in kerosene and distillates. Several refining centers reported more active demand for heavy fuels and gas oils. Wax market continued strong.

Mid-Continent—Refinery gasoline prices slightly higher when any changes were made. Natural gasolines slow and prices reflect weakness. Better demand for kerosene and distillate. Industrial fuels and gas oils firm. Bright stock prices advance. Wax active.

East Coast—General advances in gasoline and cylinder stock prices both for export and domestic movement. Kerosene demand slow. Predict higher prices for bunker fuels. Fractional advances in wax.

Gulf Coast—Better tone to gasoline market and prices higher for export movement. Fuels and gas oils steady. Neutral oil market unsettled due to price war by three of the largest manufacturers.

Pennsylvania—Gasoline prices higher. Kerosene firm. Higher prices for some grades of bright stock and neutral oils.

Chicago—Little improvement in gasoline demand and prices unchanged. Better demand for fuels and industrial grades higher. Special naphthas stronger. Kerosene steady. Wax strong.

California—Gasoline demand better but still considerable price cutting among smaller refiners. Fuels steady.

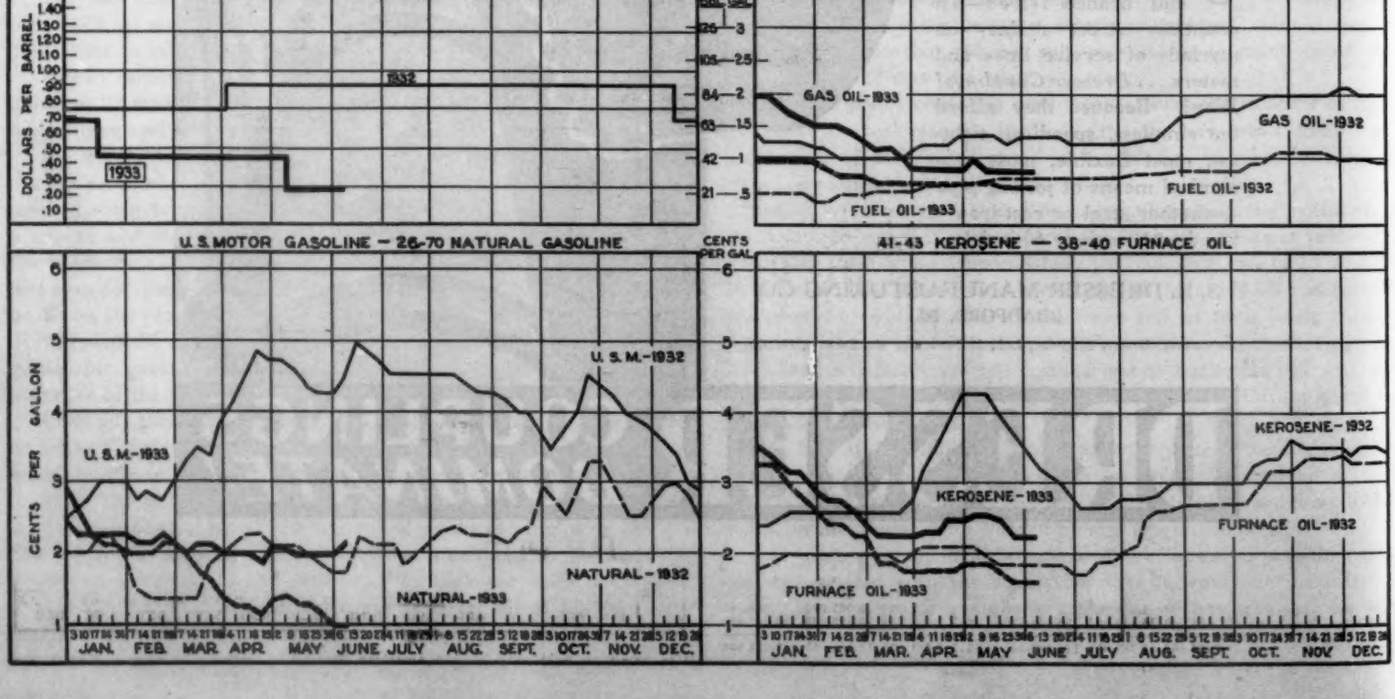
This strengthening in crude oil has come as a surprise to many who did not realize the basic conditions in regard to crude oil supply and demand in the Mid-Continent area. They had assumed that as long as there was a large overproduction for the country at large weakness rather than strength was to be expected. The gradual tightening in the raw material market over the past month reflects the fact that availability to consumer markets as well as output at the well is an important factor in determining prices.

Oklahoma-Kansas Situation

This situation can be illustrated by considering Oklahoma and Kansas as sources of crude oil supply. The present crude oil production of these two States, with little curtailment of output except in the Oklahoma City Field, is approximately 485,000 bbls. daily. At present 40 refineries in Oklahoma require 150,000 bbls. daily of this production and 20 refineries in Kansas are refining approximately 100,000 bbls. daily. The Kansas refineries could use at least 15,000 bbls. daily more oil if available and in Oklahoma the intrastate refineries in times past have run in excess of 200,000 bbls. daily. It should be remembered in this connection that these Oklahoma and Kansas refineries are not of the temporary type but in great majority of cases have been operated continuously for years. The plants requiring the bulk of the crude oil in these two States belong to major and semimajor companies and several are fortified with pipe lines for the transportation of a large part of their gasoline output to consuming centers in the Middle West.

Subtracting the requirements of the refineries within these two States from

Representative Mid-Continent Quotations on Crude Oil and Refined Products Basis Oklahoma (Group 3)



the total production and there is left approximately 235,000 bbls. daily for transportation to refinery points outside the State. Although the quantity involved has shown a steady decrease in recent years, there is still around 30,000 bbls. of this crude oil daily which moves south by pipe line to Texas points. This leaves approximately 200,000 bbls. to several major trunk line systems which go north and east out of Oklahoma and Kansas, furnishing a large inland territory which extends west from the Ohio-Pennsylvania line to the Rocky Mountain states, south to the Ohio River and north to Canada. This territory, which is the natural outlet for Mid-Continent crudes, consumes approximately one-third of all the petroleum products in United States. To the latter should be added a large part of central Canada, which is dependent on the Mid-Continent for its petroleum products either in the form of crude oil or finished products. The only crude oil available to this large inland consuming territory of the United States and Canada outside the Mid-Continent is the relatively small and settled production coming from several small pools in the Middle West and Rocky Mountain states. A majority of the refineries operating in the Middle West area, which includes several of the largest plants of the entire industry, obtain the bulk of their crude oil supplies from Oklahoma and Kansas, where the gathering systems for their pipe lines are located. Some crude oil is being brought north from East Texas and other inland Texas points to supplement the Oklahoma and Kansas supply, but these shipments are offset by the southbound movement from the two States.

The market significance of this situation is obvious. A large part of inland United States is dependent on Oklahoma and Kansas for the bulk of its crude oil and refinery products. Arkansas and Louisiana with no flush fields do not have any crude oil available in excess of local refinery requirements and a small pipe line movement south. The large East Texas production is not available for northbound movement by pipe line to a majority of buyers and any shipments represent additional costs even to those buyers who have the transportation facilities. Large production in the Gulf Coast area has no direct significance in this interior market because it could not be made available without making large extensions to pipe line systems or the development of inland water transportation.

It is this situation which accounts for the crude price strength in the older producing areas of the Mid-Continent which many believe point to higher posted prices, at least for certain areas, until such time as new flush fields are discovered. There is, of course, a check on the premiums to be paid for crude in these fields. Too high premiums would tend to increase shipments of finished products from refineries located in Texas, including the Gulf Coast, where excess crude is available, the seller absorbing the freight differentials enjoyed by refineries closer to the consuming points.

Indiana Standard Announces Additional Revisions in Its Marketing Practices

CHICAGO, June 6.—Standard Oil Co. (Indiana) announced today that the following further steps would be taken toward carrying out its ideas of changes necessary in marketing practices:

1. Beginning at once and ending by July 1 all dealer discounts and AAA commissions will be adjusted as follows:

	Cents
Red Crown Ethyl	2½
Standard Red Crown	2½
Stanolind	1½

2. All rentals will be put on a gallonage basis and reduced to one-half cent per gallon, making the total revenue to AAA operators not more than 3 cents on Red Crown Ethyl; 3 cents on Standard Red Crown and 2 cents on third brand.

3. Where it is not possible to reduce rentals to one-half cent per gallon a compensating change will be made in commissions so that total of rental and commissions will not exceed amounts stated in foregoing paragraph.

4. Flat rentals will be paid only on service stations for company operation, and then only when leases are for period of 5 or 10 years and are noncancellable.

5. Effective at once dealer contracts and AAA's will carry a clause to the effect that dealer and AAA operators shall absorb one-half of any service station local price reduction up to maximum to him of 1 cent per gallon on all grades.

6. Effective at once all sales to large consumers, including governmental units of all kinds, will be on basis of the following discounts off the tank wagon price, without exception:

	Cents
Red Crown Ethyl	2
Standard Red Crown	2
Stanolind	1

(In Chicago division one-half cent more)

7. Under no circumstances will the company loan or lease gasoline or kerosene equipment to new outlets of any kind; nor will it loan or lease air compressors, air towers, lifts, and electric light standards or poles to dealers, AAA operators or consumers. Such equipment will not be sold to anyone except another oil company engaged in supplying products on a wholesale basis.

The company will initiate negotiations with other companies to work out an understanding as to exchange of existing equipment where accounts change affiliations, and to establish a standard monthly rate of depreciation applicable after August 1, 1933, on such equipment. On account of competitive situation, the plan announced in this paragraph will not apply, temporarily, in State of Michigan.

8. Under no circumstances will this company make any hauling contracts or yard prices.

9. While the proposed changes in marketing policy are being worked out, over a period of 60 days from June 1, and providing competitive situation permits, no sales effort will be made to secure competitive dealer or AAA accounts.

Commenting on the plan announced, Allan Jackson, vice president in charge of marketing, said that he was gratified at the degree of approval with which the industry had greeted ideas of desirable changes in marketing which he recently expressed in the trade press. The initial steps taken by the Indiana company in discontinuing the dump discount and commercial discounts at service stations and in lowering the discounts on quantity deliveries by tank wagon to consumers had apparently been followed by the making of similar adjustments by other companies; so that the competitive situation remained little changed.

Recent study had convinced his company, Mr. Jackson said, that the ideas he recently outlined could not be put into effect at once in their entirety, but that a long step could be made in that direction with marked benefit to the industry. The plan now announced, he declared, represents his company's ideas of the further adjustments it can make at this time. Whether it can be maintained or whether some other plan will have to be worked out only the test of trial under competitive conditions will determine. The trial will be started at once as outlined in the plan.

Gasoline and Naphtha

Prices on gasolines and naphthas in Oklahoma for tank car movement advanced generally one-eighth cent. Several Oklahoma and Kansas refiners were among the spot buyers of the past week. In this type of buying freight rate differentials are important and a few refiners due to their location in regard to destination points were offered more business than they wanted.

Less East Texas gasoline was offered on the Oklahoma (Group 3) basis due in part to the fact there were large purchases there for movement to the coast. One large refiner in that area is reported to have sold 30,000 bbls. of gasoline for movement to the coast.

The confusion in regard to octane ratings of the U. S. Motor and 60-62 400 endpoint grades continues, although there are indications that the buyers are becoming cognizant of the fact that some of the motor fuels offered do not possess the octane rating claimed. A majority of the larger refiners are now rating their gasolines based on the new C.F.R. Motor Method test and due to that fact gasolines coming within the second and top brackets are scarce and command premiums over the third grade of from three-eighths to three-fourths cent. At the same time there is considerable gasoline being offered with better than 60 octane ratings claimed which outside tests have shown to belong well within the third class rating. These gasolines usually are offered at little or no premium over the third grade published prices and have caused considerable confusion in the sale of middle and high octane bracket material.

Of direct importance in tank car markets are the new spreads and discounts announced on this page by the Standard Oil Co. (Indiana). Elsewhere in this issue the new plan of the Standard Oil Co. of New Jersey and its subsidiaries is explained. These are the latest developments in the plan of major distributors to bring more stable conditions in retail markets which in turn will be reflected in tank car markets after their general adoption has been secured.

Kerosene and Distillate

The price ranges for kerosene and distillate in this issue are the same as those published a week ago. A week ago the market was headed downward but more buying stopped the decline the latter part

(Continued on Page 31)

American Petroleum Institute Weekly Refinery Statistics

Figures below reported for week by American Petroleum Institute. (1) Per cent refinery capacity represented. (2) Daily average crude runs to stills. (3) Total motor fuel stocks. (4) Gas oil and fuel oil stocks. All figures in 42-gallon barrels.

Week Ending June 3, 1933, Compared to Week Ago

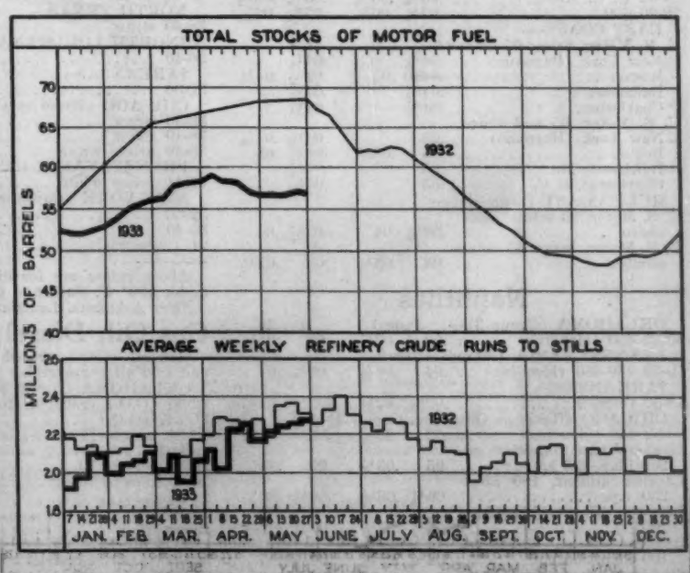
	Week ending June 3, 1933				Week Ending May 27, 1933			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
East Coast	99.1	446,000	16,922,000	6,897,000	99.1	496,000	16,919,000	6,670,000
Appalachian	95.0	81,000	2,088,000	820,000	95.0	82,000	2,167,000	800,000
Ind., Ill., Ky.	97.5	310,000	8,239,000	3,987,000	97.5	279,000	8,472,000	3,856,000
Okla., Kans., Mo.	84.9	223,000	4,948,000	3,265,000	84.9	230,000	4,871,000	3,151,000
Inland Texas	56.4	78,000	1,595,000	2,242,000	56.4	98,000	1,717,000	2,213,000
Texas Gulf	97.7	433,000	5,553,000	6,125,000	97.7	458,000	5,316,000	6,178,000
Louisiana Gulf	97.3	109,000	1,387,000	2,044,000	97.3	113,000	1,473,000	2,057,000
N. La. and Ark.	85.5	28,000	292,000	564,000	85.5	43,000	331,000	567,000
Rocky Mtn.	90.8	36,000	1,244,000	636,000	90.8	36,000	1,244,000	673,000
California	94.6	438,000	14,119,000	98,415,000	94.6	465,000	14,068,000	99,092,000
Total U. S.	91.6	2,187,000	56,287,000	125,046,000	91.6	2,289,000	57,067,000	125,257,000

Total motor fuel stocks, Bureau of Mines basis, 58,090,000 bbls.

Week Ending June 3, 1933, Compared to Year Ago

	Week ending June 3, 1933				Week Ending June 4, 1932			
	(1)	(2)	(3)	(4)	(1)	(2)	*(3)	(4)
East Coast	99.1	446,000	16,922,000	6,897,000	100.0	474,500	6,624,000	6,492,000
Appalachian	95.0	81,000	2,088,000	820,000	91.3	94,900	1,755,000	1,022,000
Ind., Ill., Ky.	97.5	310,000	8,239,000	3,987,000	98.9	288,100	6,358,000	4,050,000
Okla., Kans., Mo.	84.9	223,000	4,948,000	3,265,000	89.6	233,300	3,875,000	3,221,000
Inland Texas	56.4	78,000	1,595,000	2,242,000	....	113,000	1,548,000	2,958,000
Texas Gulf	97.7	433,000	5,553,000	6,125,000	99.8	446,400	6,229,000	6,285,000
Louisiana Gulf	97.3	109,000	1,387,000	2,044,000	100.0	101,000	1,635,000	3,954,000
N. La. and Ark.	85.5	28,000	292,000	564,000	....	55,700	300,000	735,000
Rocky Mtn.	90.8	36,000	1,244,000	636,000	89.4	28,300	2,001,000	639,000
California	94.6	438,000	14,119,000	98,415,000	96.7	457,700	13,929,000	97,102,000
Total U. S.	91.6	2,187,000	56,287,000	125,046,000	95.1	2,251,000	44,247,000	127,058,000

*Refinery stocks only.



Data based on weekly reports of American Petroleum Institute. Figures for week just ended not shown in graph but are included in accompanying table

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement except as otherwise noted

EXCLUSIVE OF TAXES

The following quotations are exclusive of the Federal excise taxes of 1 cent a gallon on gasoline and 4 cents on lubricating oils, which became effective June 21, 1932.

Refinery Gasolines

OKLAHOMA (Group 3)—	June 6		May 30	
*U. S. Motor grades:				
Regular	.02½	.02¾	.02¾	.02⅝
Premium	.02⅝	.02⅞	.02⅝	.02¾
Third grade	.02⅛	.02¼	.02	.02¼
60-62 400 grades:				
Regular	.02⅝	.02¾	.02½	.02⅝
Premium	.02¾		.02⅝	
Third grade	.02¼	.02⅜	.02⅛	.02¼
64-66 390	.02⅝		.02¼	
64-66 375	.02½	.02⅝	.02½	.02⅝
68-70 350	.02⅝	.02¾	.02⅝	
NORTH TEXAS—				
U. S. Motor grades:				
Regular	.02⅜	.02½	.02⅜	.02½
Premium	.02⅝	.02¾	.02⅝	.02¾
Third grade	.02	.02¼	.02	.02¼
60-62 400	.02¼	.02¼	.02¼	.02¼
64-66 390	.02¼		.02¼	
64-66 375	.02⅝	.02½	.02⅜	.02½
64-66 360	.02½	.02¾	.02½	.02¾
†NORTH LOUISIANA—				
U. S. Motor grades:				
Regular	.02¾	.02⅞	.02¾	.02⅞
Premium	.03	.03⅛	.03	.03⅛
Third grade	.02⅜	.02½	.02⅜	.02½
60-62 400	.02½	.02⅝	.02½	.02⅝
†ARKANSAS—				
U. S. Motor grades:				
Regular	.02¾	.02⅞	.02¾	.02⅞
Premium	.03		.03	
Third grade	.02⅜	.02½	.02⅜	.02½
CHICAGO (Based on Oklahoma Group 3)—				
U. S. Motor grades:				
Regular	.02¼	.02⅜	.02¼	.02⅜
Premium	.02½	.02⅝	.02½	.02⅝
Third grade	.02	.02⅛	.02	.02⅛
60-62 400	.02½	.02¼	.02½	.02¼
64-66 375	.02½	.02⅝	.02⅝	.02½
68-70 360	.02⅝	.02⅞	.02½	.02¾
Aviation fighting grade	.03	.03¼	.03	.03¼

*Octane Ratings—The following octane ratings apply to the three grades of U. S. Motor gasoline: Regular 60-64 octane number; premium, 65 and above octane number; third grade, 59 and below octane number. Octane ratings determined by C.F.R. Motor Method.

†For Arkansas, Louisiana and Mississippi delivery.

PENNSYLVANIA (inland refineries)—				
U. S. Motor	.04⅝	.04¾	.04¼	.04½
60-62 400	.04½	.04¾	.04½	.04⅝
64-66 375	.04⅝	.04¾	.04⅝	.04¾
68-70 350	.04¾	.05	.04¾	.05
CALIFORNIA (domestic movement)—				
54-58 U. S. Motor	.05¼	.06½	.05¼	.06½
58-60 400	.05¾	.06¾	.05¾	.06¾
EAST COAST—				
U. S. Motor, below 65 octane:				
New York (Bayonne)	.04¾		.04¼	
Boston	.0490	.05	.04½	.04¾
Baltimore	.04¾		.04¼	
Charleston, S. C.	.04¾		.04¼	
U. S. Motor, 65 and above:				
New York (Bayonne)	.05		.04¼	.04⅞
Boston	.05	.0515	.04⅞	.05
Baltimore, Md.	.05		.04½	
Charleston, S. C.	.05		.04½	
GULF COAST (domestic)—				
U. S. Motor, 65 octane and above	.03½	.04	.03½	.04
U. S. Motor, below 65 octane number	.03	.03½	.03	.03½

Naphthas

OKLAHOMA (Group 3)—	June 6		May 30	
50-52 450 (blending)	.02	.02⅛	.02	.02⅛
PENNSYLVANIA (inland refineries)—				
50-54 430-450 (blending)	.04	.04¼	.03¾	.04
†ARKANSAS—				
48-50 (blending)	.02⅜	.02½	.02¼	.02½
CHICAGO (Based on Oklahoma Group 3)—				
50-52 450 (blending)	.02	.02⅛	.02	.02⅛
Cleaners' naphtha, 56-58 gr., 200 i.b.p.-320 e.p.	.05	.05¼	.05	.05¼
Lacquer diluent, 180 i.b.p.-250 e.p.	.06¼	.06½	.06¼	.06½
Lacquer diluent, 140 i.b.p.-200 e.p.	.07¼	.07¾	.07¼	.07¾
Rubber solvent, 68-70 gr., 100 i.b.p.-300 e.p.	.04¾	.05¼	.04½	.05
Stoddard solvent, 300 i.b.p.-410 e.p., over 83° flash	.04½	.04¾	.04¼	.04½
Pet. thinner, 290 300 i.b.p.-415 e.p., over 83° flash	.04¼	.04½	.04¼	.04½
V.M.&P. naphtha, 56-58 gr., 190-200 i.b.p.-330 e.p.	.04¾	.05	.04¾	.05
Petroleum spirits	.03¾	.04	.03¾	.04

Natural Gasolines

OKLAHOMA (Group 3)—	June 6		May 30	
Grade 18-55	.01¼		.01¼	
Grade 26-70	.01		.01	
Grade 30-70	.01		.01	
*Low pressure grades:				
15 lb. v.p. (max.)	.01⅜	.01½	.01⅜	.01½
11 lb. v.p. (max.)	.01¼	.02	.01⅜	.02
NORTH TEXAS—				
Grade 18-55	.01¼		.01¼	
Grade 26-70	.01		.01	
Grade 30-70	.01		.01	
*Low pressure grades:				
15 lb. v.p. (max.)	.01⅜	.01½	.01⅜	.01½
11 lb. v.p. (max.)	.01¼	.02	.01¼	.02
NORTH LOUISIANA—				
Grade 26-70	.01¼		.01¼	
CALIFORNIA—				
75-78 375	.03¾	.04¼	.03¾	.04¼

Kerosenes

(All kerosenes water white)

OKLAHOMA (Group 3)—	June 6		May 30	
41-43	.02¼	.02⅝	.02¼	.02⅝
42-44	.02⅜	.02¾	.02⅜	.02¾
NORTH TEXAS—				
40-41	.02	.02⅛	.02	.02⅛
41-43	.02⅛	.02¼	.02⅛	.02¼
†NORTH LOUISIANA—				
41-43	.02⅝	.02¾	.02⅝	.02¾
42-44	.02¾	.03	.02¾	.03
†ARKANSAS—				
41-43	.02¾		.02¾	
PENNSYLVANIA (inland refineries)—				
45	.04	.04⅛	.04	.04⅛
46	.04⅛	.04¼	.04⅛	.04¼
47	.04⅜	.04½	.04⅜	.04½
CHICAGO (Based on Oklahoma Group 3)—				
41-43	.02¼	.02⅜	.02¼	.02⅜
42-44	.02¼	.02½	.02¼	.02½
*CALIFORNIA—				
38-40 high burning test	.03½	.04¼	.03½	.04¼
NEW YORK (Bayonne, N. J.)—				
41-43	.04¾		.04¾	
GULF COAST (domestic)—				
41-43 water white	.03¾	.04	.03¾	.04

*For Pacific Coast consumption.

†For Arkansas, Louisiana and Mississippi delivery.

Furnace Oils and Tractor Fuels

OKLAHOMA (Group 3)—	June 6		May 30	
32-36 straw	.01⅝	.01¾	.01⅝	.01¾
36-38 straw	.01½	.01⅝	.01½	.01⅝
38-40 straw	.01⅝	.01¾	.01⅝	.01¾
39-41 prime	.01¾	.01⅞	.01¾	.01⅞
NORTH TEXAS—				
38-40 straw	.01⅝	.01¾	.01⅝	.01¾
†NORTH LOUISIANA—				
36-40	.02¼	.02½	.02¼	.02½
†ARKANSAS—				
32-36	.02¼	.02½	.02¼	.02½
CHICAGO (Based on Oklahoma Group 3)—				
32-36 straw	.01⅜	.01⅝	.01⅜	.01⅝
38-40 straw	.01½	.01¾	.01½	.01¾
38-40 prime white	.01½	.01⅞	.01½	.01⅞
PENNSYLVANIA (inland refineries)—				
40-41 prime white	.02⅞	.03	.02⅞	.03
NEW YORK (Bayonne, N. J.)—				
32-36	.04		.04	
36-40	.05		.05	
21 (industrial)	.03½		.03½	

Above prices are for distillate oils of zero cold test under 190° F. flash and good odor.

†For Arkansas, Louisiana and Mississippi delivery.

Gas Oil, Diesel Oil and Fuel Oil

Gas oil (G.O.) quoted per gallon basis; Diesel oil and fuel oil per barrel.

OKLAHOMA (Group 3)—	June 6		May 30	
32-36 (G.O.) cracking stock	.00⅞	.01	.00⅞	.01
U.G.I. (G.O.)	.00⅞	.01	.00⅞	.01
32-36, zero to 15 (G.O.) high flash	.01¼	.01⅜	.01¼	.01⅜
28-30, zero to 10	.60	.65	.60	.65
26-30, zero to 10	.50	.60	.50	.60
24-26	.35	.40	.35	.40
20-22	.30	.32½	.30	.32½
Below 16	.27½	.30	.27½	.30
NORTH TEXAS—				
32-36 (G.O.) industrial	.00⅞	.01	.00⅞	.01
22-26	.35	.40	.35	.40
Below 20	.30	.32½	.30	.32½
†NORTH LOUISIANA—				
32-36 (G.O.) zero	.01¾	.02	.01¾	.02
14-16	.30		.30	.35
†ARKANSAS—				
30-32 (G.O.) zero	.02¼		.02	.02¼
14-16	.35		.30	.35
CHICAGO (Based on Oklahoma Group 3)—				
32-36 (G.O.) industrial	.00⅝	.01	.00⅞	.01
28-30 (zero)	.60	.65	.65	.70
26-28 (zero)	.52½	.57½	.55	.60
22-26 (zero)	.45	.50	.45	.50
18-22 (zero)	.40	.45	.37½	.42½
Below 18	.30	.35	.27½	.32½

Note: Fuel oils of more than 40 cold test generally 5 to 15 cents per barrel less in all areas than shown in above tables.

†For Arkansas, Louisiana and Mississippi delivery.

PENNSYLVANIA (inland refineries)—				
36-40	.03¼		.03¼	
CALIFORNIA—				
30-34 (G.O.) per bbl.	.80	.90	.80	.90
27 plus Diesel	.75	.85	.75	.85
15-19 bunker (at tidewater)	.50	.60	.50	.60
15-19 (cargo lots)	.45	.55	.45	.55
15-19 (tank cars)	.35	.50	.35	.50
GULF COAST—				
28-30 (G.O.)	.02⅝	.02⅞	.02⅝	.02⅞
28-30 Diesel	1.50		1.50	
Bunker C (bulk cargoes)	.50	.55	.50	.55
Bunker C (bunkers)	.60	.65	.60	.65
NEW YORK (Bayonne, N. J.)—				
28 plus (G.O.)	.04		.04	
*28-30 Diesel	1.65		1.65	
26-30 Diesel (tank cars)	.04		.04	
‡Bunker C	.70	.75	.70	.75

*Lighterage 6½ cents per barrel.

†Lighterage 5 cents per barrel.

‡Contract price at New York Harbor to ocean-going steamships only.

Petroleum Coke*

Prices per ton f.o.b. refineries in Chicago area.

Breeze (screenings)	4.50	4.50
Stills runs	5.50	5.50
Lump and egg	6.50	6.50

*Refineries will absorb freight to 80 cents a ton.

Neutral Oils

(Viscosity at 100° F. and color)

OKLAHOMA (Group 3)—	June 6		May 30	
Zero to 10 Cold Test:				
150-3	.06¼	.06½	.06¼	.06½
180-3	.07½	.07¾	.07½	.07¾
180-4	.07¼	.07½	.07¼	.07½
200-3	.08	.08¼	.08	.08¼
200-4	.07¾	.08	.07¾	.08
240-3	.10	.10¼	.10	.10¼
240-4	.09¾	.10	.09¾	.10
280-3	.11	.11¼	.11	.11¼
280-4	.10½	.10¾	.10½	.10¾
300-3½	.11¼	.11½	.11¼	.11½
350-3½	.11¾	.12	.11¾	.12
400-4	.12¼	.12½	.12¼	.12½
500-4½	.12¾	.13	.12¾	.13
100-2 paraffin oil	.04¼	.04½	.04¼	.04½
15-30 Cold Test:				
200-3	.07¼	.07½	.07¼	.07½
200-4	.07	.07¼	.07	.07¼
240-3	.09¼	.09½	.09¼	.09½
240-4	.09	.09¼	.09	.09¼
280-3	.10¼	.10½	.10¼	.10½
280-4	.10	.10¼	.10	.10¼
PENNSYLVANIA—				
150 vis., No. 3, 400-405:				
Zero pour test	.17	.17½	.17	.17½
10 pour test	.16½	.17	.16½	.17
15 pour test	.15¼	.15½	.15	.15½
25 pour test	.14½	.14¾	.14¼	.14½
180 vis., No. 3, 25 pour test	.16¼	.16½	.15¾	.16
200 vis., No. 3:				
Zero pour test	.20¼	.20½	.19½	.20
10 pour test	.19¼	.19½	.18¾	.19
15 pour test	.18¼	.18½	.17½	.17¾
25 pour test	.18¼	.18½	.17	.17¼
GULF COAST—				
Pale Oils:				
100-2-2½	.04¾	.05¼	.04¾	.05¼
200-3	.05½	.06	.05½	.06
300-3	.06¾	.07¼	.06¾	.07¼
500-3½	.08¾	.09¼	.08¾	.09¼
750-3½	.09¾	.10¼	.09¾	.10¼
1,200-3½	.12	.12½	.12	.12¼
2,000-4	.13	.13¾	.13	.13¾
Red Oils:				
200-5-6	.05	.05½	.05	.05½
300-5-6	.06	.06½	.06	.06½
500-5-6	.07	.07½	.07	.07½

1,200-5-6	.10¼	.10¾	.10¼	.10¾
2,000-6 plus	.12	.12½	.12	.12½
CALIFORNIA—				
Pale Oils:				
100-21½-3	.09	.09½	.09	.09½
200-21½-3	.09½	.10	.09½	.10
300-3-3½	.10½	.11	.10½	.11
350-3-4	.11	.11½	.11	.11½
400-3-4	.11½	.11¾	.11½	.11¾
450-3-4	.11¾	.12	.11¾	.12
550-3-4	.12	.12¼	.12	.12¼
Red Oils:				
200-4-5	.09½	.10	.09½	.10
300-5-6	.10½	.11	.10½	.11
350-5-6	.11	.11½	.11	.11½
400-5-6	.11½	.11¾	.11½	.11¾
450-5-6	.11¾	.12	.11¾	.12
500-5-6	.12	.12¼	.12	.12¼
600-5-6½	.12¼	.12½	.12¼	.12½
700-6½ plus	.12½	.12¾	.12½	.12¾
750-6½ plus	.12¾	.13	.12¾	.13
900-6½ plus	.13	.14½	.13	.14½

Bright and Steam Refined Stocks

OKLAHOMA (Group 3)—	June 6		May 30	
630 light green	.05½	.06½	.05½	.06½
600 light green S.R.	.05	.06	.05	.06
600 dark green S.R.	.03½	.04	.03½	.04
Bright Stocks:				
190-200 D	.19¼	.20½	.19¼	.19¾
150-160 D, 0-10	.17¾		.17	
150-160 D, 10-25	.17¼		.16½	
150-160 D, 25-40	.16¾		.16	
150-160 E	.15¾		.15	
PENNSYLVANIA—				
600 S.R.	.11	.11¼	.11	.11¼
650 S.R.	.13¼	.13½	.13¼	.13½
600 Pennsylvania flash	.14¼	.14½	.14¼	.14½
630 D filtered	.19	.19½	.19	.19½
600 E filtered	.14¾		.14¾	
Pennsylvania Grade bright stock:				
No. 8 color, 145-50 vis., at 210; 540-550 flash:				
10 pour test	.23½	.24	.23	.23½
15 pour test	.21½	.22	.21	.21½
25 pour test	.20½	.21	.20	.20½

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—	June 6	May 30
124-126 white crude scale	.02	.01⅞ .02
PENNSYLVANIA—		
122-124	.0225	.0225
124-126	.0230	.0230
NEW YORK HARBOR (domestic)—		
120-122 (a.m.p. basis)	.03	.03
125-127	.03¼	.03⅛
130-132	.0360	.03¾
133-135	.0430	.04¼
135-137	.0460	.04½
Petrolatum in barrels in carload lots:		
Dark green	.01⅞	.01⅞
Amber	.02	.02
Extra amber	.02⅜	.02⅜
Lily white	.05½	.05½
Snow white	.06½	.06½
Cream	.04½	.04½
CHICAGO (f.o.b. switching district)*—		
122-124	.0340 .0350	.0340 .0350
125-127	.0365 .0375	.0365 .0375
127-129	.0380 .0390	.0380 .0390
130-132	.0440 .0450	.0440 .0450
132-134	.0465 .0475	.0465 .0475

*Cents per pound on carlot orders in cotton lined burlap bags of 225 lbs. approx.
Add 3° F. for a.m.p.

Export Prices

GASOLINE

GULF COAST—	June 6	May 30
U. S. Motor	.03½ .03¾	.03⅛
60-62 400	.03¾	.03¼
61-63 390	.03¾	.03¼
64-66 375	.03¾ .04	.03⅜
LOS ANGELES, CALIF.—		
U. S. Motor, 53-55 437 e.p.	.03¾ .04¼	.03¾ .04¼
U. S. Motor, 65 octane	.04½ .04¾	.04½ .04¾
U. S. Motor, 67 octane	.05	.05
U. S. Motor, 69 octane	.05¼	.05¼
58-60 400 endpoint gasoline	.04¼ .05	.04¼ .05
KEROSENE		
GULF COAST—		
41-43 prime white	.03¾	.03⅞
41 water white	.03⅞	.04
LOS ANGELES, CALIF.—		
41-43 water white	.03¾ .04¼	.03¾ .04¼
LUBRICANTS		
NEW YORK (f.a.s. in bbls.)—		
600 Warren E	.22¼	.20
600 S.R. unfiltered	.18½	.16
650 S.R. unfiltered	.20¾	.18
600 flash S.R.	.21¾	.19½
630 flash S.R.	.26¾	.26
Bright stock, No. 8 color	.27½	.25½ .26½
Bright stock, No. 6½ color dil.	.26½	.24½ .25½
NEUTRALS		
NEW YORK—Pale Engine Oil, Bulk (vis. at 100)—		
230-3¾	.09¾	.09¾
180-3¼	.09½	.09½
100-2¼	.05	.05
Red Engine Oil, Bulk (vis. at 100):		
300-6½	.09½	.09½
250-6	.08½	.08½
200-6	.07¾	.07¾
PARAFFIN WAX (Fully Refined)		
NEW YORK (prices per pound)—		
123-125 a.m.p.	.02875	.02875
125-127 a.m.p.	.0290	.03
130-132 a.m.p.	.0350	.0350
133-135 a.m.p.	.04	.0425
135-137 a.m.p.	.0430	.04375

Crude Oil Prices

Eastern States

SOUTH PENN OIL CO.
(Effective May 22, 1933)

Pennsylvania Grade Oil in National Transit Lines (Bradford Field) $1.37
Pennsylvania Grade Oil in Southwest Pennsylvania Lines 1.07
Penna Grade Oil in Eureka Pipe Line Lines 1.02
Penna Grade Oil in Buckeye Pipe Line Lines ..... .90
Corning Grade Oil in Buckeye Pipe Line Co.'s lines (May 8, 1933) ..... .50
Ragland Grade Oil in Cumberland Pipe Lines (Kentucky) (Jan. 10, 1931).... .60

PENNZOIL CO.
(Effective May 22, 1933)

Pennsylvania Grade Oil in National Transit Lines:
Group A $1.32
Includes Cochran, Franklin, Hamilton and Doolittle districts.
Group B 1.31
Includes Titusville district.
Group C 1.30
Includes Turkey and Tidioute districts.
Group D 1.29
Includes Bear Creek and Porkey districts.
Group E 1.27
Includes Eidenau, Bull Creek, Rough Run, Carbon, Dipner, Bredin, McJunkin, Jameson, Kennerdell, Emlenton, Tiona, Lacy and Kinsua districts.
Price depends on length of pipe line haul to plant at Oil City.

TIDE WATER PIPE CO.
(Effective May 22, 1933)

Bradford, Pa. $1.37
Allegany, N. Y. 1.37

PURE OIL CO.
(Effective May 22, 1933)

Cabin Creek, W. Va. $1.02
Bradford Hollow, W. Va. 1.02
Kelly's Creek, W. Va. 1.02

Rocky Mountain States

Ilas, light (all grades) May 8, 1933..$ .35
Fort Collins, Wellington and Greasewood, Colo., are on contract basis.
Florence (May 6, 1933) ..... .25
Dutton Creek, Wyo. (May 8, 1933) .. .25
Rock Creek, Wyo. (Jan. 25, 1933) ....
Frannie, light (May 8, 1933) ..... .25
Frannie, heavy (May 8, 1933) ..... .20
Salt Creek (May 8, 1933) ..... .25
See Stanolind Mid-Continent price schedule
LaBarge (May 8, 1933) ..... .35
Big Muddy (May 6, 1933)* ..... .25
Big Muddy (May 8, 1933)† ..... .25
Grass Creek (Jan. 18, 1933) ..... .52
Grass Creek, heavy (Dec. 16, 1932) .... .45
Elk Basin, light (Jan. 18, 1933) .... .62
Lance Creek (Dec. 16, 1932) ..... .92
Poison Spider (Mar. 5, 1931) ..... .70
Hudson (June 2, 1931) ..... .65
Lander (Mar. 5, 1931) ..... .40
Rex Lake (Feb. 22, 1930) 1.10
Osage (Jan. 18, 1933) ..... .52
Lost Soldier (Apr. 12, 1932) ..... .30
Hamilton Dome (Dec. 16, 1932) .. .35
Torchlight (May 8, 1933) ..... .35
Greybull (May 8, 1933) ..... .35
Cat Creek (May 6, 1933) ..... .35
Pondera (Nov. 7, 1932) ..... .40
Sunburst, Mont. (May 9, 1933) ..... .45
Hogback, N. Mex. (May 8, 1933) ..... .50
Lea County, N. Mex. (See Note) ..... .20
Maljamar (Jan. 20, 1933) ..... .25
Artesia-Jackson (Jan. 20, 1933) ..... .30

Note—Salt Creek, Cat Creek, Dry Creek, Dallas-Derby, Hudson, Greybull, Hogback, and Ilas by Stanolind Oil & Gas Co. and remainder by Ohio Oil Co. Both companies posted Grass Creek light and Elk Basin. Lost Soldier posted by Producers & Refiners Corp. Artesia, Jackson and Maljamar posted by Continental Oil Co. Lea County, effective May 2, posted by Humble Oil & Refining Co., followed by other buyers; Fort Collins, Wellington, Orchard, Florence, Big Muddy, Cat Creek, Rattlesnake and Table Mesa by Continental Oil Co. Osage posted by Arro.
*Continental Oil Co. †Ohio Oil Co.

Middle Western States

OHIO OIL CO.
(Effective May 9, 1933)

Lima $0.55
Wooster (May 8, 1933) ..... .59
Illinois ..... .47
Indiana ..... .25
Princeton ..... .47
Plymouth ..... Shut in
Western Kentucky ..... .42
Midland, Mich. (May 8, 1933)* ..... .75
Somerset, Ky. (May 9, 1933) ..... .50
Muskegon, Mich. (Mar. 27) ..... See note

*Posted by Pure Oil Co. Producers Pipe Line Co. pays 5 cents per barrel over Pure Oil Co.'s posted price. Muskegon: All companies pay $1 per barrel effective March 27. Somerset, Ky., crude purchased by Ashland Refining Co., Ashland, Ky., and posted price includes premium.

Mexico

Panuco* $0 41

*F.o.b. ship, based on April transactions and exclusive of production and export taxes and bar dues.

Canada

Ontario (Jan. 18, 1933):
Petrolia* $1.75
Oil Springs* 1.83
Turner Valley†:
Crude oil, 31°-35.9° (Jan. 24, 1933).... 1.41
Crude oil, 36°-49.9° (Jan. 24, 1933.... 1.90
Crude oil, 50° up (Jan. 24, 1933)..... 2.41
Discolored naphtha (Jan. 24, 1933)... 2.58
Crude naphtha (Jan. 24, 1933)..... 2.83

*Imperial Oil, Ltd. †Imperial Oil, Ltd., and Regal Oil & Refining Co.

Crude Oil Prices in Kansas, Oklahoma, Texas, Louisiana and Arkansas

	Stanolind Crude Oil Pur. Co. May 6	Stanolind Crude Oil Pur. Co. May 8	Carter Oil Co. May 8	Humble Oil & Refining Co. May 2	Gypsy Oil Co. May 8	Gulf Pipe Line Co. May 5	Gulf Refining Co. of Louisiana May 6	The Texas Company May 9	The Texas Company May 8	Magnolia Petroleum Co. May 8	Sinclair Prairie Oil Mar. Co. May 3	Sinclair Prairie Oil Mar. Co. May 8	Shell Petroleum Corp. May 8	Standard Oil Co. of Louisiana May 6	Empire Pipe Line Co. May 8
Kansas	$.35	....	$.35	....	$.35	....	....	$.35	....	....	....	$.25	*$.35	....	$.35
Oklahoma	.25	....	.25	....	.35	....	....	.25	....	(†)	....	.25	*.25	....	.25
North-Central Tex.	....	$.25	....	$.25	....	$.25	....	....	$.25	$.25	$.25	....	....	....	....
East Central Tex.	....	.25	....	.25	....	.25	....	....	.25	.25	.25	....	....	....	....
East Texas	....	....	....	‡ .25	....	.25	....	....	.25	.25	.25	....	* .25	....	.25
West Texas	....	....	....	.20	....	.20	....	....	.20	....	....	....	.20	....	....
Gulf Coast-Tex.-La.	....	....	....	.30	....	.30	....	....	.30	.30	....	....	*.30	....	....
Salt Flat, Tex.	....	....	....	.23	....	....	....	....	....	....	....	....	.23	....	....
Pettus, Tex.	....	....	....	.35	....	....	....	....	....	....	....	....	....	....	....
Mirando, Tex.	....	....	....	.25	....	....	....	....	....	.25	....	....	....	....	....
Saxet, Tex.	....	....	....	....	....	....	....	....	.30	....	....	....	....	....	....
Duval, Tex.	....	....	....	....	....	....	....	....	.25	....	....	....	....	....	....
Darst Creek, Tex.	....	....	....	.23	....	.23	....	....	.23	.23	....	....	....	....	....
Luling, Tex.	....	....	....	....	....	....	....	....	....	.20	....	....	....	....	....
Corsicana (heavy)	....	....	....	....	....	....	....	....	....	.20	....	....	....	....	....
Lytton Springs, Tex.	....	....	....	....	....	....	....	....	....	.25	....	....	....	....	....
Bruner, Tex.	....	....	....	....	....	.23	....	....	....	....	....	....	....	....	....
Conroe, Tex.	....	....	....	.30	....	....	....	....	.30	....	....	....	....	....	....
Refugio, Tex.	....	....	....	.30	....	....	....	....	....	....	....	....	....	....	....
Gray County, Tex.	....	....	....	.20	....	....	....	.20	.20	.20	....	....	....	....	....
Carson-Hutchinson	....	....	....	.18	....	.18	....	....	.18	.18	....	....	....	....	....
North Louisiana	....	....	....	....	....	....	$.25	....	.25	.25	....	....	....	$.25	....
El Dorado (light)	....	....	....	....	....	....	.25	....	.25	.25	....	....	....	.25	....
Smackover, Ark.	....	....	....	.30	....	.30	....	....	.30	....	....	....	....	.30	....
Jennings, La.	....	....	....	.20	....	....	....	....	....	....	....	....	....	....	....

*May 6, 1933. May 10. ‡May 13. †The Magnolia Petroleum Co., effective May 9, posted the following prices in Oklahoma: Below 32 degrees, 20 cents; 25 to 34.9 degrees, 23 cents; 35 degrees and above, 25 cents.

In the fields in which they are buying in Kansas or Oklahoma or both, the following other companies posted 25 cents per barrel on the date named: Bell Oil & Gas Co., May 3; Barnsdall Refineries, Inc., May 6; Pure Oil Co., May 8; Mid-Continent Petroleum Corp., May 6; Skelly Oil Co., May 6; Vickers Petroleum Corp., May 7; Anderson & Prichard, May 6; Johnson Oil & Refining Co., May 6; Champlin Refining Co., May 6; Yale Refining Co., May 6; El Dorado Refining Co., May 6; Globe Refining Co., May 6; Rock Island Refining Co., May 8; White Eagle Oil Corp., May 9; Continental Oil Co., May 8. National Refining Co., May 24.

The Phil-Tex Oil Co. posted 20 cents in Gray County and 18 cents in Carson and Hutchinson Counties, Texas, on May 6, and on May 7 posted 25 cents in Oklahoma.

The Louisiana-Arkansas Pipe Line Co. posted 18 cents in Urania and 25 cents in other North Louisiana fields in which it buys oil. Its Smackover price of 25 cents was unchanged.

The Tide Water Oil Co. on May 5 posted 25 cents in East Texas and 40 cents in Conroe, Texas.

The Atlantic Oil Producing Co. posted 25 cents in East Texas, 20 cents in West Texas, and 35 cents in Pettus, Texas, on May 5.

H. L. Hunt, Inc., effective May 9, posted 20 cents in Urania, La. Panola Pipe Line Co. posted 25 cents in East Texas May 6.

Phillips Petroleum Co., effective May 23, posted 20 cents per barrel in Ouachita and Union Counties, Arkansas.

Shell Petroleum Corp., effective May 22, posted 25 cents in Polk County, Texas.

(California Crude Oil Prices on Page 31)

TANK WAGON MARKETS

Quotations for gasoline and kerosene in United States, as furnished by the larger marketing concerns, include taxes

June 6, 1933

Taxes

The gasoline quotations given in the following tables include the 1-cent Federal tax as well as state, county and city taxes. The gasoline quoted is the regular or standard grade. In most marketing areas a third or competitive grade is generally available at 1 or more cents per gallon under the service station price for the regular grade. Ethyl Gasolines are sold 3 cents above the service station price for the regular grade, except in Standard of Indiana and Standard of Ohio territories where premium for Ethyl Gasoline is 2.5 cents.

Southern District

STANDARD OIL CO (KENTUCKY)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Inc'lds tax of	Kero. tank wagon
Atlanta, Ga.	18.0	18.0	7.0	10.0
Augusta	19.0	19.0	7 0	9.0
Macon	19.0	19.0	7.0	13.0
Savannah	19.0	19.0	7.0	14.0
Birm'ham, Ala.	21.0	21.0	8.0	13.0
Mobile	17.0	17.0	8.0	8.0
Montgomery	22.0	22.0	8.0	14.0
Jackson, Miss.	16.0	16.9	7.0	12.0
Vicksburg	16.5	16.5	7.0	12.0
Jack'ville, Fla.	19.0	19.0	8.0	12.5
Miami	19.0	19.0	8.0	12.0
Pensacola	20.0	20.0	8.0	14.0
Tampa	19.0	19.0	8.0	12.9
Lexington, Ky.	18.5	18.5	6.0	10.0
Covington	17.0	17.0	6.0	11.5
Louisville	16.0	16.0	6.0	10.0
Paducah	19.0	19.0	6.0	9.0

In addition to the state tax of 4 cents on gasoline, Montgomery has city and county tax of 2 cents on gasoline and one-half cent on kerosene. Kerosene prices in Georgia include 1-cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene and one-fortieth cent on gasoline. To Pensacola, Montgomery and Birmingham state taxes add 1-cent tax. To Mobile state tax add 1-cent city tax. Dealers receive discount of 2 cents off tank wagon price throughout territory.

Southwestern District

MAGNOLIA PETROLEUM CO.

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Inc'lds tax of	Kero. tank wagon
Dallas, Tex.	12.5	15.0	5.0	7.5
Fort Worth	12.5	15.0	5.0	7.5
Houston	13.5	15.0	5.0	8.0
San Antonio	13.5	15.0	5.0	8.0
El Paso	13.5	15.0	5.0	8.0
Texarkana	*14.0	14.0	5.0	†11.0
Muskogee, Ok.	13.5	15.0	5.0	6.9
Okla. City	11.5	14.0	5.0	8.0
Tulsa	13.5	15.0	5.0	8.0
Ft. Smith, Ark.*	13.5	13.5	5.0	†9.0
Little Rock	*15.5	16.5	7.0	†10.0

*Less 2½ cents to dealers. †Less 2 cents to dealers.

Standard Oil Co. (Indiana)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Inc'lds tax of	Kero. tank wagon
Chicago	12.6	13.6	4.0	9.0
Decatur, Ill.	13.0	13.0	4.0	8.5
E. St. Louis	13.0	13.0	4.0	7.5
Joliet	13.0	13.0	4.0	8.5
Peoria	13.0	13.0	4.0	8.5
Quincy	12.8	12.8	4.0	8.3
Davenport, Ia.	13.1	13.1	4.0	8.6
Des Moines	13.1	13.1	4.0	8.6
Mason City	13.1	13.1	4.0	8.6
Sioux City	13.7	13.7	4.0	8.2
Duluth, Minn.	13.7	13.7	4.0	8.8
Mankato	13.3	13.3	4.0	8.8
Minneapolis	13.4	13.4	4.0	8.9
LaCrosse, Wis.	14.3	14.3	5.0	9.3
Green Bay	14.2	14.2	5.0	8.7
Milwaukee	13.7	13.7	5.0	8.2
Madison	13.9	13.9	5.0	8.4
Detroit, Mich.	13.5	13.5	4.0	9.0
Grand Rapids	13.2	13.2	4.0	8.7
Saginaw	13.5	13.5	4.0	9.0
Evansville, Ind.	14.0	14.0	5.0	8.5
Indianapolis	14.2	14.2	5.0	8.7
South Bend	14.5	14.5	5.0	9.0
Fargo, N. D.	15.1	15.1	4.0	10.6
Huron, S. D.	13.3	13.3	5.0	9.3
Sioux Falls	14.5	14.5	5.0	9.5
K. C., Mo.*	13.3	13.3	4.0	7.7
Springfield*	13.1	13.1	4.0	7.6
St. Louis	11.3	11.3	3.5	7.3
St. Joseph*	11.8	11.8	4.0	7.3
Wichita, Kans.	11.1	11.1	4.0	6.6
Bartlesville, Ok.	13.5	15.0	5.0	7.5

*State tax 2 cents, 1-cent city tax and 1-cent Federal tax.

Effective January 1, 1933—Discounts on G.D.A. on 500 gallons or more per month throughout territory; Red Crown Ethyl Gasoline, 3 cents off tank wagon price; Red Crown gasoline, 2½ cents off tank wagon price; Stanolind Blue gasoline, 1 cent off tank wagon price. On deliveries of 75,000 gallons or more each classification allowed 1 cent additional discount.

Discounts on resellers authorized agent's agreement: Same amounts as above except made off service station price instead of tank wagon price.

Stanolex Furnace Oil in Chicago

Effective April 28, 1933, prices f.o.b. Chicago, tank wagon prices: No. 1 (36-40 lt. stw. zero), 100 gallons or more, 6¼ cents; No. 2 (30-34 stw. zero), 100 gallons or more, 5¾ cents; No. 3 (22-26 zero), 100 gallons or more 5¼ cents; No. 4 (12-16 zero), 300 gallons or more, 4½ cents. Viscosity of No. 4, 90-115 at 100° F.; No. 5, 4 cents; for less than specified quantities, add 1 cent.

Fuel Oils

Associated Distributors Prices

Spot market prices on 350 gallons or over deliveries, and top prices on contracts, respectively: 28-40, 6¼ and 7¼ cents; 32-36 light, 5¾ and 6¾ cents; 32-36 dark, 5¾ and 6¼ cents; 23-30, 4½ and 4¾ cents; 24-6, 4¾ and 5¾ cents; 18-22, 4 and 4½ cents. On deliveries of less than 350 gallons the spot price is one-half cent higher.

Naphtha

	Tank Wagon	Car
Oleum spirits	10.7	6.23
V.M.&P. naphtha	12.7	6.73
Cleaners' naphtha	13.0	9.23
Stanisol	13.0	9.23

Tank wagon prices f.o.b. Chicago, January 6, 1933. Each of above prices subject to discount of 1 cent per gallon for 150-gallon lots if covered by contracts.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Inc'lds tax of	Kero. tank wagon
Denver, Colo.	14.0	17.0	5.0	11.0
Pueblo	14.0	17.0	5.0	12.5
Grand Jnctn.	16.0	19.0	5.0	14.5
Casper, Wyo.	16.0	19.0	5.0	10.0
Cheyenne	14.0	17.0	5.0	12.5
Butte, Mont.	20.0	23.0	6.0	17.0
Billings	21.0	24.0	6.0	15.5
Great Falls	21.0	23.0	6.0	17.0
Helena	21.0	24.0	6.0	17.0
Salt Lake, Utah	16.0	19.0	5.0	16.0
Albu'que, N. M.	14.0	17.0	*7.0	13.0
Boise, Idaho	18.5	21.5	6.0	18.0
Twin Falls	20.5	23.5	6.0	18.0

*One-cent city tax.

Central South District

STANDARD OIL CO. (LOUISIANA)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Inc'lds tax of	Kero. tank wagon
N. Orleans, La.	16.8	17.8	*7.0	†11.0
Baton Rouge	16.0	17.0	6 0	†10.0
Alexandria	16.9	17.9	7.0	†8.5
Lafayette	17.1	18.1	7.0	†10.0
Lake Charles	17.0	18.0	7.0	†10.0
Shreveport	14.8	15 8	6.0	†11.0
Knoxville, Tenn.	20 3	21.3	8.0	13.5
Memphis	18.6	19 6	8.0	10.0
Chattanooga	19.9	20 9	8.0	13.0
Nashville	19.5	20 5	8 0	10.0
Bristol	20.6	21.4	8 0	13.0
Lt. Rock, Ark.	17.9	18 9	8.0	10.0

*Includes city tax of 1 cent. †Louisiana kerosene prices include 1-cent state tax. New Orleans kerosene price also includes 1-cent city tax.

Effective June 2, 1933, station price fixed at 7 cents above basic tank car price at key refining points in territory. Discount to cash customers 2 cents off station price. Commercial consumers for tank wagon delivery pay following amounts over tank car price basis yearly deliveries:

1,000 to 75,000 gallons	2.5
75,000 to 300,000 gallons	1.5
Over 300,000 gallons	1.0

Nebraska

STANDARD OIL CO. (NEBRASKA)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Inc'lds tax of	Kero. tank wagon
Omaha	14.3	15.3	5.0	8.0
McCook	15.8	16.8	5.0	8.5
Norfolk	14.8	15.8	5.0	8.0
N Platte	15.8	16.8	5.0	9.0
Scottsbluff	15.8	16.8	5.0	9.5

Note — Dealers' discount allowed as follows: Red Crown Ethyl, 3 cents off station price; Red Crown, 2½ cents off normal service station price; Nebraska Blue (third grade), 1 cent off normal service station price.

Atlantic Coast District

STANDARD OIL CO. (NEW JERSEY)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Inc'lds tax of	Kero. tank wagon
Atl'tic City, N.J.	16.2	17.2	4.0	11.2
Newark	15.4	16.4	4.0	8.5
Annapolis, Md.	16.8	17.8	5.0	9.0
Baltimore	16.3	17.3	5.0	8.0
Cumberland	17.8	18.8	5.0	11.7
Wash'g'n, D. C.	14.5	15.5	3.0	10.0
Danville, Va.	18.9	19.9	6.0	9.9
Norfolk	17.4	18.4	6.0	10.3
Petersburg	18.2	19.2	6.0	11.4
Richmond	17.8	18.8	6.0	10.7
Roanoke	19.0	20.0	6.0	11.0
Charls'n, W. Va.	17.2	18.2	5.0	11.6
Parkersburg	16.5	17.5	5.0	10.2
Wheeling	17.2	18.2	5.0	11.2
Charlotte, N. C.	20.6	21.6	7.0	12.5
Hickory	20.9	21.9	7.0	12.7
Mt. Airy	20.9	21.9	7.0	12.8
Raleigh	20.4	21.4	7.0	12.3
Salisbury	20.7	21.7	7.0	12.6
Charleston, S.C.	18.4	19.4	7.0	10.3
Columbia	20.2	21.2	7.0	12.2
Spartanburg	20.6	21.6	7.0	12.5

Note—Dealer contracts for gasoline are written at 2½ cents over the posted tank car price. A 2-cent discount allowed for cash at all service stations. Kerosene 1 cent off tank wagon for 25 gallons or more under contract except New Jersey and Baltimore, Md.

Ohio

STANDARD OIL CO. (OHIO)*

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Inc'lds tax of	Kero. tank wagon
Ohio points	15.5	16.0	5.0	*13.0

*Two cents off on gasoline tank wagon to dealers and commercial accounts; 2½ cents off tank wagon and kerosene to dealers.

New York and Part of New England District

STANDARD OIL CO. (NEW YORK)*

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Inc'lds tax of	Kero. tank wagon
Albany, N. Y.	15.6	16.6	4.0	9.0
New York	14.5	14 5	4.0	8.0
Buffalo	16.5	17.5	4.0	9.0
Rochester	16.7	17.7	4.0	9.0
Syracuse	16 3	17.3	4.0	9.5
Boston, Mass.	15.5	16.5	4.0	8.0
Augusta, Me.	17.0	18.0	5.0	9.0
Manch'tr, N. H.	17.7	18.7	5.0	8.0
Burlington, Vt.	18.3	19.3	5.0	8.5

*Discount schedule to commercial accounts are as follows: At service stations, 1 cent per gallon; tank wagon deliveries up to 20,000 gallons monthly, 2 cents per gallon; 20,000 to 100,000 gallons, 2½ cents; 100,000 to 300,000 gallons, 3 cents; 300,000 gallons and up, 3½ cents.

Canada*

IMPERIAL OIL, LTD.

Imperial 3-Star Gasoline

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Inc'lds tax of	Kero. tank wagon
Hamilton, Ont.	22.5	25.5	6.0	15.5
Toronto, Ont.	22.5	25.5	6.0	15.5
Brandon, Man.	29.0	32.5	7.0	17.5
Winnipeg, Man.	26.0	29.5	7.0	17.5
Regina, Sask.	29.0	33.0	8.0	21.5
Saskatoon, Sask.	31.0	35.0	8.0	23.5
Edmonton, Alta.	29.5	33.5	8.0	23.5
Calgary, Alta.	26.0	30.0	8.0	19.0
Vancouver, B.C.	26.5	29.5	7.0	22.5
Montreal, Que.	22.0	25.0	6.0	15.0
St. Johns, N.B.	24.5	28.5	7.0	20.5
Halifax, N.S.	23.5	27.5	6.0	20.5

*Imperial gallon used in Canada.

Pennsylvania-Delaware and Part of New England

ATLANTIC REFINING CO.

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Inc'lds tax of	Kero. tank wagon
Pittsburgh, Pa.	13.5	14.5	4.0	9.5
Philadelphia	13.5	14.0	4.0	9.0
Scranton	13.5	14.5	4.0	9.0
Allentown	13.5	14.5	4.0	9.0
Altoona	13.5	14.5	4.0	9.5
Erie	13.5	14.5	4.0	9.5
Dover, Del.	13.5	14.5	4.0	9.0
Wilmington	13.5	14.5	4.0	9.0
Springf'd, Mass.	15.8	16.8	4.0	8.0
Worcester	15.7	16.7	4.0	8.0
Boston	15.2	16.2	4.0	8.9
Providence, R.I.	14.2	15.2	3.0	8.0
Hartford, Conn.	14.6	15.6	3.0	8.0
New Haven	14.4	15.4	3.0	8.0

Discount schedule effective November 1, 1932. In Delaware and Pennsylvania, 2 cents off station price on purchases of 2,000 gallons or more per month, in remainder of territory 1 cent. Wholesale discount 2½ cents per gallon on monthly deliveries of 20,000 to 100,000 gallons, 3 cents on 100,000 to 300,000 gallons, and 3½ cents on more than 300,000 gallons.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA*

	Gasoline: Tank truck†	Gasoline: Posted retail	Gasoline: Incl'ds tax of	Kero. tank wagon
Fresno	19.5	18.0	4.0	14.0
San Francisco	19.0	17.5	4.0	13.5
Los Angeles	18.0	16.5	4.0	13.5
Reno, Nev.	23.5	21.0	5.0	15.5
Portland, Ore.	19.5	18.0	5.0	13.5
Seattle, Wash.	20.5	19.0	5.0	13.5
Tacoma	20.5	19.0	5.0	13.5
Spokane	23.5	22.0	5.0	18.0
Phoenix, Ariz.	18.5	20.0	6.0	‡16.0

*Retail prices posted by Standard Stations, Inc., a subsidiary.

†Above prices are at company's plant or depots as company does not operate stations. A 4-cent per gallon discount is given dealers and customers taking tank wagon lots except in Phoenix where the discount is 1 cent. ‡Includes 5-cent state tax.

TANK WAGON CHANGES

(Regular grade gasoline and kerosene)

Standard Oil Co. of New Jersey, effective June 2, made important advances in gasoline tank wagon and service station prices throughout its entire territory and also established posted tank car prices at key points. Amount of advances vary at different points. A 2-cent discount allowed for cash at all service stations.

Standard Oil Co. of New York, Inc., effective June 3, advanced gasoline tank wagon and service station prices .3 cent throughout entire territory.

Standard Oil Co. of Nebraska, effective June 1, reduced gasoline tank wagon and service station prices 2 cents at normal points throughout Nebraska. At some points, due to demoralized price structures, the change in quotations to correspond to the 2-cent general change resulted in increases rather than decreases. Company announced that third grade gasoline will sell 1 cent under regular grade in both tank wagon and service station sales.

Continental Oil Co., effective April 20, reduced kerosene tank wagon price 1½ cents at Denver, Colo.; effective May 15, gasoline service station price advanced 1 cent; effective May 27, reduced gasoline tank wagon and service station prices 2 cents at Grand Junction, Colo.

Standard Oil Co. of Louisiana advanced the gasoline tank wagon and station prices 1 to 3 cents at all points June 2 as shown in the accompanying table. At the same time a schedule of discounts was announced for commercial accounts taking tank wagon deliveries and a 2-cent discount was posted for cash purchases off the station price.

OIL AND HEAT RESISTING CABLE

A new cable insulated with glyptal-treated cloth and capable of resisting oil and withstanding high temperatures has been developed by the General Electric Co., and is now available in all types. In addition to its ability to resist oil and heat, this new cable is characterized by unusual flexibility and toughness which enables it to stand severe mechanical strain. The insulating material known as glyptal is a synthetic resin, produced from phthalic anhydride and glycerin, which is unaffected by mineral oil. Because of this inherent quality, glyptal-treated cloth maintains its original properties over long periods of time, even at elevated temperatures. Sample of cable insulated with glyptal-treated cloth have been exposed to temperatures of 100° C. for periods of three to four months without showing appreciable deterioration.

DEATH OF D. B. DUFF

D. B. Duff, veteran oil operator, died at his apartment in Cleveland, Ohio. Mr. Duff was a member of the firm of Root, Hupp and Duff, which attained considerable success in the Eastland area of Texas. Mr. Duff was once associated with the late T. B. Slick in different oil enterprises. His body was taken to Darlington, Pa., where the funeral was held.

NATURAL GASOLINE MANUFACTURE

California Plants Increase Output of Natural Gasoline

California natural gasoline production increased from 29,506 bbls. daily during March to 31,435 bbls. during April, according to the California division of the Bureau of Mines. There was also an increase in the volume consumed at refineries, the total taken in March being 22,814 bbls. while in April 24,537 bbls. were taken. Shipments increased materially, amounting to 4,213 bbls. daily as compared to 1,313 bbls. daily in March. Stocks of natural gasoline held by natural gasoline plant operators increased from 64,645 bbls. to 68,977 bbls. and stocks held by refiners increased from 2,440,148 bbls. to 2,458,598 bbls.

Total stocks within the Pacific Coast territory, exclusive of stocks of 1,375 bbls. held on island possessions, were 2,527,575 bbls. at the close of April compared with 2,504,793 bbls. at the beginning of the month.

NATURAL GASOLINE STATISTICS FOR CALIFORNIA FOR APRIL AND MARCH, 1933

	Natural gasoline—April (bbls.)	Natural gasoline—March (bbls.)
SUPPLY		
Total production	31,812	29,893
Stock trans. (deliv.) receipts—net	(210)	(340)
Total	31,602	29,553
Deduct refinery requirements:		
Run to stills	3,605	3,113
Blended	20,932	19,701
Total	24,537	22,814
Gains (losses) unaccounted for—net	(1,752)	(1,688)
Net supply available to market	5,313	5,051
DEMAND		
Domestic consumption	341	400
Offshore shipments:		
Alaska and Hawaii	2	1
Pacific foreign exports	1,622	1,313
Atlantic for.gn. exports	3,179	0
Total market demand	4,554	1,713
Surplus	759	3,338
STOCKS—LAST DAY OF PERIOD		
Inside Pacific Coast territory—at refineries	2,180,251	
Elsewhere	347,324	
Inside Pacific Coast territory—last day	2,527,575	2,504,793
Increase during month	22,782	
OPERATING DATA FOR APRIL		
Number of plants operating	106	
Daily capacity in thousand cubic feet	2,370,779	

PRODUCTION BY FIELDS

	Gas treated (M. cu. ft.)	Natural gasoline produced (gallons)
Fullerton and Whittier	441,722	1,106,743
Midway	1,520,703	2,610,797
Huntington Beach	628,056	1,563,413
Kettleman Hills	8,288,716	10,122,147
Long Beach	3,123,566	7,342,861
Richfield	373,485	439,808
Santa Fe Springs	4,449,230	6,913,345
Seal Beach	535,795	799,106
Ventura Avenue	2,921,101	3,057,539
All other fields	3,685,626	5,662,669
Total	25,698,000	39,607,418

PRODUCTION BY METHODS

Type of plant—	Gas treated	Natural gasoline produced (gallons)	Gasoline recovery per M.c.f. gas treated
Oil absorption	25,827,935	39,467,002	1.528
Compressor	130,965	140,416	1.073
Total	25,963,000	39,607,418	1.525

	Bbls.
Finished gasoline produced at plants	309

STOCKS

	Gallons	Barrels
Natural gasoline held by plant operators	2,897,615	68,977
Natural gasoline held by refineries	103,261,116	2,458,598
Total	106,158,131	2,527,575

LIQUEFIED PETROLEUM GASES (Barrels—daily average)

	April	March
Production	377	387
Sales	341	400

State Permit Needed to Operate Plants and Must Report All Stocks Monthly

The Oklahoma Tax Commission has ready for distribution a summary of rules and regulations for the guidance of natural gasoline manufacturers, refiners and producers in complying with the various newly enacted laws regarding the compilation and payment of the state gross production tax. It includes a summary of forms to be used and the following discussion is intended to cover only that portion of the rules pertaining to natural gasoline or casinghead gas. The forms to be filled out and forwarded to the commission are as follows:

FORMS TO BE USED IN REPORTING

Form No.	Description—	Date first in use (1933)
300	For reporting purchases of oil and gas	
301	For reporting production of oil and gas	
302	For reporting and paying proration fund	April 11
303	For making distribution of fund by counties	
304	To be used for reporting production of asphalt and gres	July
305	For reporting volume of oil and gas processed during month	May
306	Application for tax refund	
307	Statement of delinquent tax	
308	For reporting stored oil	May
309	Application for license to operate gasoline plant or refinery	May
310	Report on transportation of oil and gas	May
311	License permitting operation of plants	(*)

*On approval of Form 309.

Form 300. This form must be filled out by all purchasers of gas. The report will serve as the basis for payment of the tax after deductions are made for taxes paid to the credit of producers and royalty owners.

Form 301. Producers of natural or casinghead gas will report the volume of gas produced for the period stated. The report will show the name of the purchaser if sold. Payment of the tax must accompany the report.

Form 305. This form must be filled out and forwarded to the commission monthly by each manufacturer and in it he must report the volume of gas processed and give an inventory of the stocks on hand at the close of the previous month.

Form 309. This form serves as an application for the operation of a natural gasoline plant. An application must be filed for each plant to be operated. In the case a company is now operating a number of plants a blanket permit will be issued covering existing plants and

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Fire Destroys the Richfield Oil Co.'s Booster Plant in the Signal Hill Field of California

LOS ANGELES, Calif., June 3.—The Long Beach Field experienced its first real major catastrophe at 2 o'clock Friday afternoon, June 2, when a drum in the Richfield Oil Co.'s booster station exploded. The explosion and subsequent fire destroyed the plant, several field derricks, tanks and other production equipment. This is the third major fire in California natural gasoline plants.

Two high-pressure plants were destroyed by fire in the Kettleman North Dome Field within the past few years, one of which, the Los Nietos Gasoline Co.'s installation, was subsequently rebuilt. The Texas Co.'s plant in the hills was completely destroyed and has not been rebuilt.

In addition to ten known to have

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—Photo by The Inman Co.

Fire in the Richfield Oil Co.'s booster plant in the Signal Hill area in California following an explosion that took seven lives

Natural Gasoline Defined for Federal Tax Purposes

WASHINGTON, D. C., June 2.—The taxability of natural or casinghead gasoline and industrial benzol are dealt with in a decision by the Bureau of Internal Revenue. The decision states:

"Advice is requested concerning the application of the tax imposed by Section 617 of the Revenue Act of 1932 to the products known as natural or casinghead gasoline and industrial benzol.

"Section 617 of the Revenue Act of 1932 imposes a tax on gasoline sold by the importer thereof or by a producer of gasoline. Section 617(c)2 provides that 'the term "gasoline" means gasoline, benzol and any other liquid the chief use of which is as a fuel for the propulsion of motor vehicles, motor boats, or airplanes.' In Internal Revenue Bulletin 11-44, page 19, the bureau issued a ruling (S.T. 554) which was predicated upon the premise that the tax imposed by Section 617 of the Revenue Act of 1932 is applicable only to such products as are suitable for use as a fuel for the propulsion of motor vehicles, motor boats, or airplanes. In accordance with that view the bureau held that sales of industrial benzol which had not reached a state of compounding, blending, or processing so as to be suitable for use as a fuel for the propulsion of motor vehicles, motor boats, or airplanes are not subject to the tax imposed by Section 617 of the Revenue Act of 1932.

"Upon reconsideration of this question with particular reference to the definition of 'gasoline' embodied in the law, the conclusion has been reached that the previous ruling exempting from the tax imposed by Section 617 sales of industrial benzol, is not warranted by the grammatical and legal construction of Section 617(c)2, supra.

"Accordingly, it is held that the tax imposed by Section 617 of the Revenue Act of 1932 is applicable to sales of all products commonly or commercially known as gasoline or benzol, including natural or casinghead gasoline and industrial benzol, regardless of classification or use.

"S.T. 554, in so far as inconsistent with the conclusion reached herein, is, therefore, revoked."

BUY EASTERN SHORE GAS CO.

Robert Lewis, president, and P. J. Minck, secretary and treasurer of the Eastern Shore Gas Co., have sold their interests in that company to William H. Wulf and L. D. Pierson, of New York.

The company has a butane plant and distributing system in Ocean City, Md., and an 8-mile pipe line supplying Berlin, Md. It also operates a propane plant and distributing system in Snow Hill, Md., at which point an extensive bottled gas business has been developed in rural communities and homes. The company also operates a propane distributing system in Chincoteague, Va., and a butane plant and distributing system in Pocomoke City, Md., where the main office of the company is located.

MAGNOLIA BUILDING PLANT

The Magnolia Petroleum Co. is building a 25,000-gallon natural gasoline plant on the Latham lease 3 miles from Pampa in Gray County, Texas. It will be designated as the Kings Mill plant and is being assembled from equipment taken from several of its idle plants in Texas. The gas will be supplied from several of the company's wells near the plant. Construction work is now under way.

Comparative Data on Bottom Hole Pressures

(Continued from Page 20)

maximum daily production under such conditions may be less than would be the case with a larger diameter of casing. Suppose, for example, that in one of these Seminole wells a test were made through 3-inch tubing, and the maximum daily production found to be 300 bbls. per day and the bottom hole flowing pressure to be 141 pounds. A back pressure test similar to that shown in Figure 2 is assumed to indicate that a larger daily production could be obtained if the flowing pressure at the bottom of the tubing could be lowered. A glance at the graphs for 4-inch, 6⅝-inch and 8¼-inch in Figure 1 would appear to indicate that a lower pressure could be obtained if one of these larger pipes be employed. Suppose that the back pressure graph tended to indicate that if the pressuce of 141 pounds could be lowered to 120 pounds, the daily production would be raised to 800 bbls. per day, or if lowered to 110 pounds the daily production would be 900 bbls. per day. Inspection of the graphs in Figure 1 would show that with bottom hole flowing pressure of 120 pounds there could be lifted approximately 800 bbls. per day through 4-inch tubing, and that 900 bbls. per day could be lifted through the annular space between 6⅝-inch casing and 2½-inch upset tubing with bottom hole flowing pressure of 110 pounds. If such a change in the casing could be made, the production could be very materially increased above that made in flowing through the 3-inch tubing.

It should be emphasized that these graphs cannot be employed for any other conditions than those found at Seminole. For other fields, and for other kinds of oils, other sets of graphs must be constructed which will take into consideration the particular conditions existing in those fields. This involves a great deal of work, and the tests must be actually performed in the field.

Differences of Opinion in Coastal Paleontology

(Continued from Page 14)

ciation of Petroleum Geologists at Houston last March particular attention was attracted to it in a discussion concerning a paper on the Jackson and Cockfield formations prepared by Miss Alva C. Ellisor, head of the paleontological department of the Humble Oil & Refining Co. A number of other papers on nomenclature also were read at that meeting. The subject of paleontology occupied a place on the program of the spring meeting of the southwestern district, American Petroleum Institute, Division of Production, at Houston last April, and has come up at several local meetings of geologists and paleontologists.

Under the auspices of the Houston Geological Society a series of papers are being prepared by representative paleontologists of the different companies, in each of which the views of the respective paleontologists and companies will be analyzed to the end that some agreement might be worked out.

It is of little practical value to attempt to correlate two wells if micropalentologists are not in accord on their respective determinations. To have the information that a certain marker was topped at, say, 3,850 feet, while in another well the same marker was given out to be 3,750 feet, means little if those running the samples in these wells do not recognize the same relative positions of the markers or have different designations. It is true that if all the samples in any one well are taken to the four or five larger companies, no two of the paleontological reports will show the same depths for the key markers. The mix-up which follows can be appreciated readily. The situation is such now that in the use of marker points it also is necessary to know what company or what paleontologist ran the samples so that a comparative interpretation can be made and in instances this interpretation is difficult because it is not generally known always what type forms are used by cerain micropaleontologists in making their determinations.

Confusing Differences

One of the most conspicuous discrepancies has been that of the Hockleyensis, a marker now most commonly used. For instance, Humble Oil & Refining Co.'s "McElroy" has generally been accepted as the equivalent of the Hockleyensis of other companies, although in reality the interpretation of the McElroy by Humble paleontologists is not by the Textularia Hockleyensis but by a type form not used by others. The Hockleyensis may or may not be the top of the McElroy—it may be below the McElroy or even above it—so any correlation on Hockleyensis points obtained from Humble wells used along with those of wells of other companies probably would result in miscalculations.

The Vicksburg-Fayette determination is another which has involved considerable question. In the accompanying chart it is seen that the Humble Oil & Refining Co. makes a distinction between the Vicksburg and the Fayette, classing the upper portion as Vicksburg, which is in the Oligocene, and the lower portion as Fayette, in the Jackson or Eocene age. Certain other companies, including the Gulf Production Co. and the Texas Co., have not recognized the Vicksburg but have placed the entire horizon in the Fayette and entirely in the Eocene. Thus, checking on the Fayette, a Gulf or Texas report on a well's samples would show the top of the Fayette as being higher than the top as reported by Humble, *or*, in other words, the top of the Fayette as found by the former companies would be what Humble would designate as the top of the Vicksburg.

Lately, the Texas Co. subdivided the Fayette and designated the upper portion as "Vicksburg" but this was done, not in recognition of this formation but rather with a view toward getting together with the other companies. It still is the contention of paleontologists of that company that what fossils are found in the formation do not belong in the Oligocene but are of Eocene age and thus the entire section should be Fayette.

The Disputed "Cockfield"

Going on down, the "Cockfield" has been the cause of much dispute, and especially since the development of the Conroe Field. Cockfield is the name applied by Humble Oil & Refining Co. to that particular formation which it carries at the top of the Yegua but which the majority of other companies identify as being basal Jackson. Some companies make no distinction between it and Dibollensis while others call it by such names as Pettus pay, Pettus sand, or lower Pettus. In Conroe, which is the most typical producing field in the horizon, the name Cockfield has been commonly accepted although paleontologists are not agreed as to what constitutes Cockfield or whether it is Yegua or basal Jackson.

Practically the entire section below what is designated as the top of the black shales is one grand mixup but for the most part the confusion seems to be largely in nomenclature and classification. The division points between one formation and another seem to run somewhat uniform in the various determinations.

Differences of determinations indicated in the correlation of the Oligocene, Miocene and more recent formations are not particularly vital and generally are confined to the nonmarine and consequently the nonfossiliferous sections. For instance the Catahoula is variously classed as being in the Oligocene or Miocene. Down to the Discorbis, the top of the marine Oligocene, there are no reliable or uniform markers. Miocene depositions generally are fossiliferous only down dip near the present coast. The marine Oligocene, consisting of the Discorbis, Heterostegina and Marginulina, is fairly consistent and there is virtually no disagreement as to marker points.

In efforts to eliminate the confusion which exists, chiefly in the Jackson and Yegua series, and establish a uniformity of determination of marker points it has been recommended by certain paleontologists that the present nomenclature be discarded completely and that those sections be divided into zones based on generally accepted and well definable foraminifera, on which there could be no disagreement. To simplify the nomenclature and make the markers easily recognized, the various zones would be identified by the name of the fossil, such as: The Hockleyensis zone, the Dibollensis zone, the Noninella zone, the Discorbis Yeguaensis zone and the Epinoides zone. Many of the present determinations and classifications which serve to confuse not only the operators but the geologists and paleontologists as well are based on special foraminifera not commonly used but identified by certain groups of micropaleontologists in their respective determinations.

Standard Drops Control of Retail Gasoline Prices

(Continued from Page 10)

tribution plus 7½ cents per gallon, where local competitive conditions permit.

Posted retail tank wagon price—Posted service station price less 1 cent per gallon.

Cash discounts—Two cents per gallon off posted service station price.

While no information is available directly from the company, it is understood that a change in the handling of commercial accounts is pending following the action of Standard Oil Co. of New York and other eastern marketers in entirely eliminating commercial discounts from their sales programs. No additional commercial contracts are being taken by Standard Oil Co. of New Jersey, Colonial-Beacon, Standard Oil Co. of Pennsylvania and Standard Oil Co. of Louisiana, it is understood, and it is inferred that at the expiration of current contracts the commercial discount feature will either be dropped entirely or modified. At the present time, it is understood, commercial discounts in Jersey's territory run as high as 3 cents per gallon.

Comparison of Prices

A comparison of revised posted tank wagon and service station prices in Standard of New Jersey's territory and quotations existing prior to June 1 (less taxes in all instances) follows:

	Tank wagon		Serv. sta.	
	New price	Previous price	New price	Previous price
Atlantic City	12.2	10.0	13.2	11.0
Newark	11.4	8.9	12.4	8 9
Annapolis	11.8	9.6	12.8	10.6
Baltimore	11.3	9.0	12.3	10.0
Cumberland	12.8	10.5	13.8	11.5
Washington	11.5	9.2	12.5	10.2
Danville, Va.	12.9	10.7	13.9	11.7
Norfolk	11 4	9.1	12.4	10.1
Petersburg	12.2	10.2	13.2	11.2
Richmond	11.8	9.5	12.8	10.5
Roanoke	13 0	10.7	14.0	11.7
Char't'n, W.Va.	13 2	10.4	13.2	11.4
Parkersburg	11.5	9.0	12.5	10.0
Wheeling	12.2	10.0	13.2	11.0
Charlotte	13 6	10.3	14.6	11.3
Hickory	13.9	11.5	14.9	12.5
Mt. Airy	13.9	11.4	14.9	12.4
Raleigh	13.4	11.1	14.4	12.1
Salisbury	13.7	11.0	14.7	12.0
Char't'n, S. C.	11.4	9.1	12.4	10.1
Columbia	13 2	11.0	14.2	12.0
Spartanburg	13.6	8.0	14.6	9.0

Figuring off the 2-cent per gallon cash discount allowed at service stations, the above prices show net advances of from 0.2 to 3.6 cents per gallon, according to locality.

The Jersey company for several years past has strongly opposed secret concessions to distributors, which have resulted in widespreading, both of which evils have been encouraged by tax evasion and bootlegging. These conditions have thoroughly undermined the position of the marketing branch of the oil industry, and their effects have been felt in sharply reduced earnings by the industry as a whole. It is felt in trade circles that the present drastic departure in marketing procedure taken by the Standard Oil Co. of New Jersey and its subsidiaries will exert an important influence in stabilizing the basic wholesale price structure throughout the territories where these companies market.

The new sales plan of the Jersey company will be closely watched in its actual operation by other major integrated units, and it is felt that if the plan develops the satisfactory results which its sponsors envisage that a similar realignment in marketing methods may be witnessed by other units in the industry.

A general tendency on the part of major refiners to divorce their sales departments from actual price control over retail quotations at dealer stations, it is felt, would do much to discourage the promiscuous price cutting which has been such a feature of the retail markets for years past. Under former arrangements, with dealers granted margins of 2 to 3 cents per gallon, according to their arrangements with individual refiners and marketers, the dealers were in many instances given carte blanche to meet price competition whenever and wherever it developed, and consequently the dealers wasted no time in slashing their prices to meet real or fancied competition. Under the plan of the Jersey company, it is contemplated that the supplier will adjust wholesale prices whenever local competitive conditions require such action, and that independent dealers will be much less inclined to start localized price wars once they realize that these campaigns are going to take away their own profits from the handling of gasoline.

The new sales plan is a direct attack upon uneconomic marketing practices and uncalled for price cutting and its results will be watched with close interest by the industry as a whole.

Fire Destroys Richfield Oil Co.'s Booster Plant

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been killed, 33 persons were given hospital treatment. The exact cause of the disaster will probably never be determined as the four operators in that part of the plant where the explosion occurred were burned to death. The only known witness to the explosion was driving along Prospect Street in front of the plant and he saw a valve blow off a high-pressure tank. He speeded up his automobile in order to get out of the immediate area. The main explosion occurred a few seconds later with a terrific detonation and sufficient concussion to push over derricks on wells located within a radius of 500 feet. The natural gasoline plant destroyed by the explosion and subsequent fire was operated by the Signal Hill Gasoline Co., a subsidiary of the Richfield Oil Co. The plant was being used as a booster and had a daily capacity of 18,000,000 feet.

The absorption plant was located on the Meader lease of the Richfield, a little less than 100 feet removed from the booster plant. The absorption unit, which has a daily capacity of 16,000,000 feet of natural gas, was processing approximately 12,000,000 feet per day when the explosion occurred.

The entire unit has been in continuous operation for approximately four years without an accident of any kind.

A number of rigs and surface equipment were burned, damaged, or entirely demolished in the explosion and fire, and it will probably be another week or 10 days before the debris is removed, new rigs erected, and a survey made to ascertain the condition of the wells involved. Companies which suffered damage to rigs and equipment were D'Angelo Petroleum Co., three wells; Cummings Oil Co., one; Richfield Oil Co., five; California Western Oil Co., three; Graham & Loftus Oil Co., one; Italo Petroleum, four; Hancock Oil Co., two, and Petroleum Securities, one.

In addition to this group of wells, several others suffered minor damage, which will necessitate a suspension of production activities for two or three days. About 25,000 bbls. of crude oil and 10,000 bbls. of natural gasoline were lost. Some of the crude oil was salvaged by impounding it back of a hastily constructed dike about two blocks away from the fire.

Frank W. Abrams Now President of Standard Oil Co. of New Jersey

NEW YORK, June 6.—Frank W. Abrams was elected president of the Standard Oil Co. of New Jersey (Delaware) today succeeding C. G. Black, who retires July 1 under provisions of the company's new retirement policy.

C. G. Black, J. H. Senior, H. Riedemann and E. W. Clark are retiring from the directorate of the parent Jersey company, and it is understood that they will not be replaced. A change in the by-laws reducing the number of authorized directors is being planned.

Slight Improvement in Group 3 Refinery Market

(Continued from Page 25)

of last week. Specification kerosene in sales to the trade range up from 2¼ cents with the straw and prime white distillates bringing a low of 2⅝ cents in the Oklahoma market. Limited quantities of East Texas kerosene and distillate are available under these quotations.

Other Products

Several refiners report inquiries for fuel oil and gas oil. Some of these inquiries are for the purpose of obtaining information regarding probable price trends later in the summer when buying for winter consumption will increase. An increase in industrial buying of fuel oil is also apparent, although the purchases are still small when compared with those of normal times.

Most of the refiners have contracts with railroads which are netting them 40 cents per barrel at this time. Railroads have increased their takings on some of these contracts recently and with heavy rail movement at the start of the harvest season of the Southwest, additional demand is expected. Prospective buyers are finding little fuel oil of low or medium cold test available in Oklahoma. Gas oil prices range up from seven-eighths cent per gallon.

Except for the advance in bright stocks no general changes were made in the list of Oklahoma lubricants. One refiner making special grades of steam refined stocks advanced prices 1 cent per gallon. Wax continues in active demand in Oklahoma at a low of 2 cents for the 124-126 grade.

A.P.I. Committee Will Consider Industry Bill

NEW YORK, June 6.—Axtell J. Byles, president of the American Petroleum Institute, has called a meeting of the Institute's executive committee to assemble here tomorrow, to consider the effects of the industrial recovery bill upon the operations of the oil industry. The committee will give particular attention to the possibility of revamping and making effective the Institute's original code of marketing practices, designed to remedy the outstanding evils in retail marketing operations, it is understood.

START TOMBALL LINE

HOUSTON, Tex., June 5.—Humble Pipe Line Co. has started work on the first outlet for the new Tomball Field in northern Harris County, a 13-mile line of 6, 8 and 10-inch pipe which will run from the company's Satsuma pump station to a point about 2½ miles southeast of the discovery well. Humble has a surface lease on 20 acres in the eastern part of the W. Usner Survey directly south of the town of Tomball and the pump station will be erected on this site.

The line will be ready for operation by July 1, according to officials of the company. Two 55,000-bbl. storage tanks will be erected in the field.

McADOO ASKS PROBE

WASHINGTON, D. C., June 6.—Senator McAdoo of California (Dem.), introduced a resolution in the Senate on Tuesday providing for a Senate investigation of the oil industry.

License Clause Rejected; Subsequently Approved

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suffered a heavy reduction, greatest where taxation was greatest.

"It has been charged here," said Mr. Pew, "that the so-called major oil companies are responsible for present depressed conditions in production. This I emphatically deny. It would be quite as sensible to charge that these companies are deliberately bent on committing suicide.

"If taxes were distributed in fair proportion to all those who thus benefit, gasoline would not have to bear more than 25 per cent of present taxes, the rest being raised from those other industries which share the profits of automotive activities. A sales tax would effect exactly this kind of an equitable distribution," said Mr. Pew.

In its attempt to balance the budget last year, the Treasury Department estimated taxes of $450,000,000, of which $266,000,000 or 59 per cent would come from the automotive and petroleum interests, but as a result the budget was not balanced.

"I think it must be plain to the committee," said Mr. Pew, "that you must find a wider base for your taxation structure."

Frederick Brenckman, Washington representative of the National Grange, during the course of his statement said:

"First of all, I want to say that we are not in favor of increasing the tax on gasoline as suggested in the bill passed by the House. This gasoline tax belongs to the states and it should be allowed to remain there. The states have gone in debt to the extent of billions of dollars to build roads. They are depending upon the earning capacity of those roads to pay off that debt and if we make this tax prohibitive the debt will have to be paid just the same and in the end it means we will have to pay higher taxes on real estate."

New Tax Program

The tax program of Chairman Harrison was eventually approved by the committee providing for a capital stock tax of one-tenth of 1 per cent on the fair valuation of corporations which is estimated to raise $80,000,000. A penalty levy of 5 per cent would be imposed on surplus profits over 12½ per cent.

There will also be an increase of one-half of 1 cent a gallon on gasoline to raise $62,000,000, instead of three-quarters of 1 cent as provided in the House bill. This is in addition to the 1 cent a gallon Federal tax. Another flat tax on corporation dividends deducted from the source is provided, estimated to raise $73,000,000.

A motion to strike out all of the increased Federal gasoline tax was lost 9 to 8 and the fight against the tax will be carried to the floor of the Senate. The vote in committee in favor of striking out was: Gore, Reed, Keyes, King, Walsh, Connally, Byrd, Hastings; against striking out: Harrison, George, Barkley, Bailey, Lonergan, Metcalf, Walcott, Clark, LaFollette, absent McAdoo, Costigan, Couzens.

The penalty for filing consolidated tax returns was increased from the present three-quarters of 1 per cent to 1 per cent applying to 1934 and 1935. Under the present law this penalty would expire with the 1933 tax return.

The bill was reported to the Senate, debate to begin Wednesday.

C. R. FRY DEAD

Clarence Robert Fry, dealer in oil leases, died in Tulsa Sunday, June 4, at the age of 60 years. Mr. Fry moved from Morgantown, W. Va., to Tulsa in 1921. He was a native of western Pennsylvania.

California Crude Oil Prices

STANDARD OIL CO. OF CALIFORNIA
(Effective March 5, 1933)

For current purchases of crude oil at the well (unless otherwise specified). (All gravities above those quoted take highest price offered in that field.)

Gravity—	Long Beach	Seal Beach, Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda, Brea Canyon	Athens-Rosecrans	Torrance	Richfield	Whittier	Montebello	LaHabra, Coyote	Santa Fe Springs	Midway-Sunset, Elk Hills, Buena Vista Hills	Lost Hills	Coalinga
14-14.9	$.55	$.55	$.55	$.55	$.55	$.55	....	$.55	$ 55	$ 55	$.55	$.55	....	$.49	$.49	$.49
15-15.9	.55	.55	.55	.55	.55	.55	....	.55	.55	.55	.55	.55	....	.49	.49	.49
16-16.9	.55	.55	.55	.55	.55	.55	....	.55	.55	.55	.55	.55	....	.49	.49	.49
17-17.9	.55	.55	.58	.58	.58	.58	....	.57	.58	.57	.55	.55	....	.49	.50	.49
18-18.9	.57	.55	.61	.61	.60	.61	....	.59	.58	.59	.55	.57	....	.49	.52	.49
19-19.9	.59	.57	.63	.64	.63	.64	....	.61	.61	.61	.55	.59	....	.49	.54	.49
20-20.9	.61	.59	.64	.67	.64	.66	....	.63	.63	.63	.55	.61	....	.52	.56	.49
21-21.9	.63	.62	.66	.69	.66	.65	....	.64	.66	.65	.55	.63	$.57	.55	.58	.51
22-22.9	.65	.64	.68	.71	.69	.70	....	.66	.68	.67	.57	.65	.59	.57	.60	.53
23-23.9	.67	.67	.70	.73	.71	.72	....	.68	.70	.69	.60	.67	.62	.60	.62	.55
24-24.9	.69	.69	.72	.75	.73	.73	$ .65	.70	.73	.71	.62	.69	.64	.62	.63	.57
25-25.9	.71	.72	.74	....	.75	.75	.68	.72	.75	....	.65	.71	.66	.66	.65	.59
26-26.9	.73	.74	.76	....	.77	.77	.70	.73	.77	....	.68	.73	.69	.68	.67	....
27-27.9	.75	.76	.77	....	....	.79	.73	....	.80	....	....	.74	.71	.71	.69	....
28-28.9	.77	.79	.79	....	....	.81	.75	....	.83	....	....	.76	.73	.74	.71	....
29-29.9	.79	.81	.81	....	....	....	.78	....	.84	....	....	.78	.76	.76	.73	....
30-30.9	.81	.84	.83	....	....	....	.81	....	....	....	....	.80	.78	.79	.75	....
31-31.9	....	....	....	....	....	....	.83	....	....	....	....	.82	.80	.82	....	....
32-32.9	....	....	....	....	....	....	.84	....	....	....	....	.84	.82	.85	....	....
33-33.9	....	....	....	....	....	....	.84	....	....	....	....	.86	.85	.87	....	....
34-34.9	....	....	....	....	....	....	.86	....	....	....	....	.88	.87	....	....	....
35-35.9	....	....	....	....	....	....	.86	....	....	....	....	....	.90	....	....	....
36-36.9	....	....	....	....	....	....	....	....	....	....	....	....	.93	....	....	....
37-37.9	....	....	....	....	....	....	....	....	....	....	....	....	.94	....	....	....
38-38.9	....	....	....	....	....	....	....	....	....	....	....	....	.96	....	....	....
39 and over	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....

Signal Hill—Met on same day by The Texas Company, Union Oil Co. and General Petroleum Co., and Associated Oil Co.

Huntington Beach—The Texas Company, Union Oil Co., General Petroleum Co. and Associated Oil Co. schedules stop at 26-26.9 degrees, 75 cents.

Seal Beach, Alamitos Heights—The Texas Company met all prices; Union Oil Co., General Petroleum Co. and Associated Oil Co. schedules stop at 26-26.9 degrees, 75 cents.

Athens, Rosecrans, Dominguez—Union Oil Co. schedule stops at 25-25.9 degrees, posting 23-23.9 degrees, 65 cents; 33-33.9 degrees, 87 cents; 34-34.9 degrees, 89 cents; 35-35.9 degrees, 90 cents. Associated Oil Co. met Standard Oil Co. schedule; General Petroleum Co. met Standard Oil Co. prices, stopping at 23-23.9 degrees at 86 cents.

Torrance—Met by The Texas Company. Met by Associated Oil Co, General Petroleum Co. and Union Oil Co., up to 25-25.9 degrees, at 75 cents.

Inglewood—Met by Associated Oil Co. and General Petroleum Co.

Playa Del Rey—(Prices subject to 5 cents per barrel gathering charge. Met by Union Oil Co. schedule starting at 19 gravity.

Olinda-Brea Canyon—Met by Union Oil Co. Met by General Petroleum Co., up to 25-25.9 degrees at 75 cents.

Santa Fe Springs—Met by The Texas Company, General Petroleum Co., Union Oil Co. and Associated Oil Co.; schedules start at 24-24.9 degrees, 64 cents, and end at 35-35.9 degrees, 90 cents.

East Coyote—Effective March 5, Union Oil Co.: 14 to 16.9 degrees, 55 cents; 17-17.9 degrees, 57 cents, with 2 cents added for each degree upward to 24.24.9 degrees, at 71 cents.

Richfield—Met by The Texas Company; met by Union Oil Co. up to 25-25.9 degrees, at 75 cents.

Montebello—Met by Union Oil Co. up to 25-25.9 degrees, at 65 cents.

Kern River, Mount Poso, McKittrick, Sunset, Midway, Elk Hills, Buena Vista Hills—Effective March 5, Union Oil Co.: 11-13.9 degrees, 44 cents; 14 to 19.9 degrees, 49 cents; 20-20.9 degrees, 52 cents; 21-21.9 degrees, 55 cents; 22-22.9 degrees, 57 cents; 23-23.9 degrees, 60 cents; 24-24.9 degrees, 62 cents; 25-25.9 degrees, 65 cents; 26-26.9 degrees, 68 cents; 27-27.9 degrees, 71 cents; 28-28.9 degrees, 74 cents; 29-29.9 degrees, 76 cents; 30-30.9 degrees, 79 cents. Associated Oil Co. scheduled in Midway, Elk Hills and Buena Vista Hills starts at 11 to 13.9 degrees, 44 cents; same as Union Oil Co. schedule from 14 to 29.9 degrees; 30-30.9 degrees, 79 cents. General Petroleum Co.: Effective March 5 in Midway-Sunset same as Associated Oil Co.; Fruitvale, Kern Front, Kern River, Mount Poso and Round Mountain, 49 cents for all grades.

Montebello—Met by Union Oil Co. up to 25-25.9 degrees, at 65 cents; The Texas Company's schedule in Montebello and North Whittier, 14 to 21.9 degrees, 55 cents; 22-22.9 degrees, 57 cents; 23-23.9 degrees, 60 cents; 24-24.9 degrees, 62 cents; 25-25.9 degrees, 65 cents; 26-26.9 degrees, 68 cents.

Santa Paula—Union Oil Co., March 5, 14 to 19.9 degrees, 55 cents; 20-20.9 degrees, 58 cents, with 1 cent added for each degree upward to 25-25.9 degrees, at 61 cents, and then 2 cents added for each degree upward to 30-30.9 degrees, at 71 cents. The Texas Company posts similar schedule in Santa Paula and Shiells Canyon.

Lost Hills-Belridge—Met by Associated Oil Co. and Union Oil Co., with Union Oil Co. paying 44 cents for 11 to 13.9 degrees gravity.

Coalinga—Met by Union Oil Co. and Associated Oil Co. on March 5 and General Petroleum Co. on March 15, but latter company and Associated Oil Co. posted 44 cents for 11 to 13.9 degrees effective March 5.

Ventura Avenue—Associated Oil Co., March 5, 23-23.9 degrees, 58 cents, with 2 cents added for each degree up to and including 30-30.9 degrees at 74 cents. Effective March 15, General Petroleum Corp.

Orcutt—Union Oil Co., effective March 5: From 16 to 19.9 degrees, 49 cents; 20-20.9 degrees, 52 cents; 21-21.9 degrees, 55 cents; 22-22.9 degrees, 57 cents; 23-23.9 degrees, 60 cents; 24-24.9 degrees, 62 cents; 25-25.9 degrees, 66 cents; 26-26.9 degrees, 68 cents.

Kettleman Hills—Effective March 5, Standard Oil Co., Union Oil Co. and Associated Oil Co.: 32 to 33.9 degrees, 66 cents, with 2 cents added for each degree upward to 39-39.9 degrees at 78 cents. Effective March 15, General Petroleum Corp.

Elwood—Prices f.o.b. ship—Standard Oil Co. of California, effective March 5: 22-22.9 degrees, 83 cents; 24-24.9, 85 cents; 25-25.9 degrees, 87 cents; 26-26.9 degrees, 89 cents; 37-37.9 degrees, 91 cents. Met by Union Oil Co.

Newhall, McKittrick and Kern River—Standard Oil Co. of California, 55 cents for all grades, effective March 5.

Wheeler Ridge—Standard Oil Co. of California, effective March 5: 14 to 20.9 degrees, 49 cents; 21-21.9 degrees, 50 cents; 22-22.9 degrees, 52 cents; 23-23.9 degrees, 54 cents; 24-24.9 degrees, 56 cents; 25-25.9 degrees, 58 cents.

Rincon—General Petroleum Corp., effective March 15: 23-23.9 degrees, 54 cents; 2 cents added for each degree upward to 30-30.9, at 70 cents.

Late Fields

OKLAHOMA

Midcontinental Co.'s No. 1 Edwards, C SE SE, Section 19-11-1, Oklahoma County wildcat, has spudded and landed surface casing and was waiting for the cement to harden. Heavy rotary tools are being rigged up to resume drilling operations. This wildcat is located between the Greater Seminole and the Oklahoma City fields.

Gypsy Oil Co. and others' No. 1 McConnell, C NE SE, Section 28-17-4w, Logan County wildcat, which found approximately 2,000,000 feet of gas a day in the Layton sand at 4,870-96 feet, caught fire when opened and damaged the rig before being put out. It was shut in until the rig can be repaired.

A new producer in the Oklahoma City Field was Haynes Brothers' No. 1 Little, C NE NE, Section 27-11-3w, which made 1,210 bbls. of oil in two hours and seven minutes from the Wilcox sand at 6,458-6,596 feet. The gas was estimated at 20,000,000 feet a day.

Carter Oil Co.'s No. 1 Canard, CSL SW SE, Section 35-11-6, in the Keokuk Falls area of Seminole County, found water in the Wilcox sand from 4,398-4,428 feet. Fluid rose 3,000 feet in the hole of which it is estimated that 2,500 feet is water and 500 feet oil. It was drilling deeper at 4,437 feet.

It will be later in the week before the first potential tests in the Greater Seminole Field have been received by the state proration department. The Allen and Bowlegs Pools were tested on June 1, 2 and 3. On June 4, the Asher-Wanette, Carr City, Konawa and Sasakwa Pools were tested. On Wednesday, the Earlsboro and Earlsboro townsite fields will be tested. Little River and Searight Pools will start potential tests on June 10.

Mid-Continent Petroleum Corp.'s No. 2, NW cor. NE, Section 6-6-5, Pontotoc County, was drilling in Woodford shale at 3,795 feet. It found the top of the Mayes at 3,500 feet.

Amerada Petroleum Corp.'s No. 1, SE cor. NE, Section 32-7-4, in south extension area of the St. Louis Pool, in Pottawatomie County, found the top of the Mayes lime at 3,740 feet.

The State's deepest drilling test, the Denver Producing & Refining Co.'s No. 1 Noe, NW cor. SW SW, Section 34-10-10w, Caddo County wildcat, near Binger, was fishing for drill pipe at a total depth of 8,854 feet.

On the edge of the Cement Field in Caddo County, W. L. Miller's No. 1 Garner, SE cor. SW, Section 26-6-10w, was fishing at 3,792 feet. This test has found a number of showings of oil and gas of which four were enough to make a commercial producer.

KANSAS

A new location was staked on the west side of the Hollow Pool in Harvey County, the Producers & Refiners Corp.'s No. 3 Martens, NW cor. SE Section 19-22-3w. It is the east offset to the Sinclair Prairie Oil Co.'s No. 1 Ediger, a 300-bbl. Hunton lime well. It is believed that rotary tools will be used to drill the well.

Turman Oil Co.'s No. 1 Bridgens, SW cor. SE SW Section 2-20-3w, is the eighteenth well completed in the Johnson Pool, near the townsite of McPherson, in McPherson County. Swabbing tests showed the well to be making 25 bbls. of oil an hour. It is believed that with additional cleaning out the production of the well can be increased.

The wildcat test northeast of the townsite of McPherson, Roth & Farout's No. 1 Swanson, NE cor. SW NE Section 13-19-2w, found a showing of oil in the Kansas City lime at 2,335-2,400 feet. The Kansas City lime was high on structure and it may mean that paying production will be found in the chat or in some of the deeper formations.

In the Rits-Canton Pool, in McPherson County, the Vernon Oil & Gas Co.'s No. 2, NE cor. SW Section 20-19-2w, on the west edge of the field was drilling at 2,100 feet, in shale. It is expected this test will be drilled to the Viola lime. The chat formation is expected to be found in the neighborhood of 2,950 feet.

In the Hollow Pool, in Harvey County, Frank Hollow and others' No. 2 Schmidt, NW cor. NE NW Section 17-22-3w, found oil in the Hunton lime at 3,450 feet, and was preparing to make a production test.

In the Voshell Pool, in McPherson County, the Stanolind Oil & Gas Co.'s No. 4 Zerger, SW cor. NW SE Section 16-21-3w, was drilling deeper to test the production in the Siliceous lime. The old total depth of the well was 3,425 feet and it was drilling at 3,445 feet.

Use Viscosity-Temperature Chart in All Asphalt Tests

Investigations on the viscosity and plasticity of plastic and nonplastic asphaltic bitumens recently reported by Dr. R. N. J. Saal and G. Koens in an interesting paper (Journal, Inst. Pet. Tech., Vol. 19, p. 176 [1933]) show that the A.S.T.M. Viscosity-Temperature Chart (D341-32T) may be used for the viscous or nonplastic type asphalts as well as for lubricating oils. Their experiments show that it is possible to extend the useful range of the chart to 100,000,000,000 centistokes, which is equivalent to approximately 450,000,000,000 Saybolt seconds.

Dr. J. C. Geniesse (Atlantic Refining Co.), who reviewed the paper, reports that the two viscous asphalts chosen for the experiments had the following properties:

	A	B
Specific gravity at 25° C.	1.01	1.02
Melting point, B. & R., ° C.	33	50
Penetration 100 g. for 5 sec. at 0° C.	5	...
Penetration 100 g. for 5 sec. at 15° C.	71	4.5
Penetration 100 g. for 5 sec. at 25° C.	250+	28.5
Penetration 100 g. for 5 sec. at 40° C.	...	250+
Ductility at 0° C.	0	0
Ductility at 15° C.	100+	100+
Solubility in petroleum spirit at 80° C., per cent	99	99

Data were obtained in both a capillary and a Couette viscometer at temperatures ranging from 5° C. to 125° C. The data fall on a straight line when plotted on the A.S.T.M. Viscosity-Temperature Chart extended by means of the mathematical equation used for its development. This is good news to those who use the chart, since there was some question at the time of its development by Committee D-2 on petroleum products and lubricants concerning its usefulness for asphaltic products.

As a precautionary measure it must be remembered that the chart should not be used on plastic materials such as lubricating oils at temperatures below the cloud point or for blown asphalts, whose viscosity, at any given temperature, varies with the applied shearing stress. No two dimensional charts can be used for plastic materials.

MAGNETIC STORM

The Tucson, Ariz., station of the U. S. Coast and Geodetic Survey reports that a moderate magnetic storm started at 1 p.m. (C.S.T.) on May 29 and ended at 6 a.m. (C.S.T.) June 2. The telegrams follow:

"Storm began twenty-ninth. Nineteen. Moderate."

"Storm ended second. Twelve."

OPPOSE TAX DIVERSION

A resolution opposing any diversion of gasoline tax or registration fees from the roads and favoring a reduction of registration fees and gasoline taxes to a level commensurate with present-day wages was passed by the Virginia Oil Men's Association in the closing meeting of its conference at Roanoke.

TWO DEATHS IN EMSCO STAFF

Two deaths have occurred recently in the staff of the Emsco Derrick & Equipment Co., Los Angeles, Calif. Ray Sasse, credit manager, died from a heart attack May 26. He had been with the company eight years. J. S. Wagner, export manager, died June 1. Mr. Wagner was one of the company's oldest employes and had been with it since its organization.

California Oil Field Operations for April, 1933

According to figures collected by the American Petroleum Institute, the total production of crude oil in California for April amounted to 14,262,943 bbls., an average of 475,431 bbls. per day. This is an increase of 42,690 bbls. per day over March production.

CRUDE PETROLEUM PRODUCTION
(Figures of production and stocks are in barrels of 42 gallons)

Group No. 1—	Barrels per month	Daily average April, 1933	Daily average March, 1933	Daily average April, 1932
Coalinga	314,143	10,472	10,557	10,470
Elk Hills	386,196	12,873	12,781	12,643
Fruitvale	147,191	4,906	5,051	4,014
Kern River	263,071	8,769	8,806	10,015
Kettleman Hills-Middle Dome	9,128	304	.....	223
Kettleman Hills-North Dome	1,787,599	59,587	59,534	60,134
Lost Hills-Belridge	273,225	9,075	9,395	9,375
McKittrick	50,511	1,695	1,695	1,886
Midway-Sunset	1,411,176	47,039	47,381	50,795
Mount Poso	239,426	7,981	8,810	7,925
Round Mountain	89,773	2,992	3,001	2,969
Wheeler Ridge	14,178	473	456	535
Group No. 2—				
Capitan	480	16	29	103
Elwood	382,802	12,760	13,385	16,877
Rincon	60,545	2,018	2,015	1,521
San Miguelito	32,295	1,077	1,037	443
Santa Barbara	20,429	681	700	270
Santa Maria	82,560	2,752	2,333	2,941
Summerland	2,563	85	100	107
Ventura Avenue	976,187	32,540	36,241	29,371
Ventura-Newhall	96,747	3,225	3,304	3,627
Watsonville	1,725	58	61	63
Group No. 3—				
Coyote	340,001	11,333	7,632	10,416
Dominguez	548,242	18,275	12,742	31,914
Fullerton (Brea Olinda)	231,365	7,712	6,841	8,329
Huntington Beach	834,453	27,815	20,690	32,278
Inglewood	384,308	12,827	9,306	13,813
Lawndale	7,652	255	266	317
Long Beach	2,211,282	73,709	63,089	62,145
Los Angeles-Salt Lake	26,434	881	796	1,129
Montebello	160,116	5,337	4,056	6,431
Newport	.....	.....	.....	.....
Playa Del Rey	363,065	12,102	11,230	17,773
Potrero	13,858	439	457	576
Richfield	195,043	6,501	5,091	6,499
Rosecrans	93,329	3,111	2,300	3,100
Santa Fe Springs	1,617,923	53,931	48,636	66,305
Seal Beach	373,591	12,453	6,293	12,597
Torrance	137,403	6,347	5,732	6,423
Whittier	33,723	1,124	932	1,226
Total April	14,262,943	475,431	432,741	517,481
Total March	13,414,980	432,741	.....	.....
Increase	847,963	42,690	.....	.....

TOTAL STOCKS HELD BY CALIFORNIA OIL COMPANIES, BOTH INSIDE AND OUTSIDE THE UNITED STATES

	Apr. 30, 1933	Mar. 31, 1933	Apr. stock decreases	Apr. 30, 1932
Heavy crude and all grades of fuel, gas and Diesel oils	99,973,713	98,795,332	*1,178,381	98,116,932
Refinable crude	39,478,710	39,913,999	435,289	42,434,690
Finished gasoline, engine distillate and natural gasoline	15,287,516	15,601,273	313,757	18,442,175
Crude gasoline and naphtha distillates	2,937,584	4,432,681	495,097	4,491,020
All other stocks	†6,850,585	†6,819,043	*31,542	†7,892,056
Total all stocks	165,578,198	165,612,228	34,220	171,376,783
*Increase. Barrels of coke included	†644,489	†672,522		†662,291

OIL FIELD DEVELOPMENT

Group No. 1:	New rigs up	Active drilling	Producers completed	Daily initial output	Active producing	Abandoned wells Drillers	Abandoned wells Producers
Coalinga	...	...	...	.....	623	...	...
Elk Hills	...	...	...	.....	195	...	...
Fruitvale	2	5	...	.....	52	1	...
Kern River	...	1	...	.....	948	1	1
Kettleman Middle Dome	...	...	...	.....	1	...	...
Kettleman North Dome	3	11	3	18,003	33	...	...
Lost Hills-Belridge	1	3	...	.....	144	...	...
McKittrick	...	...	...	.....	118	...	...
Midway-Sunset	3	1	1	170	1,740	...	1
Mount Poso	1	2	1	50	96	...	...
Round Mountain	...	...	...	.....	23	...	...
Wheeler Ridge	...	...	...	.....	24	...	...
Group No. 2:							
Capitan	...	...	...	.....	2	...	...
Elwood	...	...	...	.....	40	...	...
Rincon	...	1	...	.....	24	...	...
San Miguelito	...	2	...	.....	2	...	...
Santa Barbara	...	1	2	415	9	...	...
Santa Maria	...	...	...	.....	164	...	...
Summerland	...	...	...	.....	42	...	...
Ventura Avenue	3	4	...	.....	154	...	...
Ventura-Newhall	1	10	1	15	441	2	...
Watsonville	...	...	...	.....	7	...	...
Group No. 3:							
Coyote	...	2	1	824	89	...	...
Dominguez	2	3	1	826	58	...	...
Fullerton	...	...	...	.....	355	...	...
Huntington Beach	...	3	...	.....	397	...	1
Inglewood	...	1	...	.....	215	...	...
Lawndale	...	...	...	.....	7	...	...
Long Beach	1	14	4	1,997	961	...	3
Los Angeles-Salt Lake	...	...	...	.....	174	...	24
Montebello	...	2	...	.....	156	...	...
Newport	...	...	...	.....	...	...	...
Playa Del Rey	...	3	...	.....	195	2	5
Potrero	...	...	...	.....	13	1	...
Richfield	1	...	...	.....	166	...	...
Rosecrans	...	...	...	.....	63	...	...
Santa Fe Springs	...	...	...	.....	511	...	1
Seal Beach	...	...	...	.....	99	...	...
Torrance	...	...	...	.....	330	...	...
Whittier	...	...	...	.....	139	...	...
Miscellaneous drilling	5	32	...	.....	....	8	...
Group No. 4:							
Buttonwillow gas field	...	1	...	.....	1	...	...
Dudley Ridge gas field	...	1	...	.....	....	1	...
Goleta gas field	...	...	...	.....	....	...	...
April	22	104	14	22,315	8,913	16	36
March	13	108	10	9,393	8,940	6	8
Increase	9	*4	4	12,922	*28	10	28
Average for year 1932	15	108	15	13,069	8,925	16	14
Average for year 1931	32	307	21	30,370	8,911	20	15
Average for year 1930	80	424	63	48,710	9,632	21	27

*Decrease.

Minor Changes in Chicago Prices as Trade Awaits Efforts to Improve Gasoline Retail Markets

By R. C. CONINE
Chicago Bureau, The Oil and Gas Journal

CHICAGO, June 5.—For at least two years market observers in this territory have been saying that the refiners are losing money on every gallon of gasoline and other products sold, and it has been freely admitted that "something should be done about it." For a week now, in Chicago, the trade, from the largest major to the smallest minor operator, has been buzzing with plans for action. Excessive Q.D.A.'s and wide marginal guarantees are readily admitted to be the fountain head of the destructive cut price wars which have swept over the territory until successive general price revisions have brought the service station price of gasoline, exclusive of taxes, to little more than the tank car price plus the Group 3 freight. It will be noted that although the price of gasoline at the service station in Chicago is 8.6 cents, excluding taxes, the regular grade gasoline is offered at some stations supplied by well known refiners at 6.6 cents. The share of the refiner may be ascertained by taking the sum of the freight, 2.44 cents, the discount the jobber gives the dealer, plus half a cent rental, or 4 cents, and the profit for the jobber, and subtract the total from the service station posting. With the Chicago service station price at 8.6 cents, the contract tank car buyer with a 5.5-cent marginal guarantee pays the refiner a delivered Chicago price of 3.1 cents, or a net back to the Group 3 refiner of 0.66 cent.

It is reported that a number of refiners have been able to ameliorate their distress by arriving at some form of compromise with their contracted accounts. One of these compromises provides that the buyer will pay a fair price for his gasoline, while the refiner will place credits on his books in favor of the buyer to become applicable when a better situation exists in the retail markets. Immediate relief would be given by lowering of the quantity discount allowance made off the service station price to dealers, as most of the marginal guarantee contracts are predicated on the present discounts and state that lower discounts shall benefit the refiner.

Lower Q.D.A.'s

With the exception of a number of marketers who are skeptical of the worth of any action which reduces their immediate profits, there is little adverse criticism heard in Chicago district in respect to the proposed reduction in the quantity discounts to resellers. However, it is expected that a number of refiners will visualize a harvest of new business available by merely retaining the larger discounts while their competitors are offering smaller inducements. Just how the position of these larger Q.D.A. refiners will differ from that of the present wide marginal spread refiners as depressants on the service station markets, is difficult to see. Buyers from these refiners, if experience is any indication, will feel that they can cut service station prices, and their prices will be met so that eventually the refiner may wonder just who is driving him to the wall.

Large Order Shows Price Higher

The Chicago post office business, which usually draws bids from a dozen marketers, was sought by only three bidders, and one of these was apparently not anxious to get the award. The post office requirement of 225,000 gallons (regular) of gasoline is for the period of July 1, to September 30, 1933. Companies bid as follows: Standard Oil Co. (Indiana), bidders bulk plant proposal, 2.25 cents plus 2.44 cents handling charge; Jewett & Sowers Oil Co., 2.46 cents maximum, plus 3 cents handling charge; Seneca Petroleum Co., tank car proposal, eighth of a cent under average tank car range with 3-cent maximum and 0.4 cent handling charge. This shows some betterment over bids for the current quarter. The Benzoline Motor Fuel Co. business of 125 cars of gasoline several weeks ago was taken at a price under 2 cents, Group 3.

Little Blending in Evidence

While the warm weather may explain why demand for natural gasoline should decline in this district, marketers who have been selling more natural gasoline than U. S. Motor gasoline to cut price operators, are at a loss to explain why they are not selling these customers so much as a gallon of any of the naturals although prices of as low as 1 cent a gallon have been offered to the trade. In other similarly warm periods the cut price operators bought considerable quantities of natural and naphtha, and appeared to worry not at all about the vapor locking tendencies of their motor fuel. Gasoline must be available at lower prices than is supposed, one of these distributors believes, or the natural blends must be encountering more critical purchasers. Blending naphtha is pratically unheard of in the district, and prices named are purely nominal.

Low Endpoint Grades Advance

The fact that all gasoline prices are abnormally low probably accounts for the preference of more buyers for the better grades of gasoline. While prices on most of the gasolines were unchanged Monday, the two low endpoint gasolines advanced an eighth of a cent. The 64-66 375 endpoint gasoline shows a new range of 2½ to 2⅝ cents, and the 68-70 360 endpoint material has moved up to 2⅝ to 2⅞ cents. It is reported that some of the refiners who have adopted the Ethylized regular grade gasoline will offer this material to their jobber accounts at the price posted for unEthylized regular gasoline.

See Third Grade Fadeout

That the third grade gasoline is scheduled to make its exit rather than the Ethyl premium gasoline because of the advent of the Q Ethylized regular grade gasoline, is the opinion of certain close students of marketing. It is pointed out that when the octane race got well under way service station attendants started the practice of practically driving the customer away from the Ethyl pump. The regular grade of their company, these attendants said, was just as good as Ethyl and 3 cents cheaper. Now that the refiners have added Q fluid to this gasoline, the attendants are expected to decide that Premium Ethyl must be far superior if a little Ethyl fluid had to be added to the much publicized regular grade. The upshot, it is said, will be that the idea will carry over to the public that gasoline, to be good, must be Ethylized, and the third grade will lose a lot of its popularity.

Indications that the Q gasoline campaign is making great strides include a 100 per cent increase in bromine shipments to Detroit; the move of the Indiana Standard company in allowing identical discounts on the Ethyl and regular grades, where before the reseller or tank wagon buyer got an extra half cent discount on the Ethyl; the adoption, according to reports, of the Ethylized regular gasoline by one of the majors in Chicago district. Even before the entrance of Q fluid, the trade felt that the third grade gasoline would be discontinued with the coming of better times.

Special Naphthas

Although the special naphthas appear to be in a better position than last week, it is feared in some quarters that certain of the larger producers will attempt to anticipate backsliding by setting up new low prices down the list. Rubber solvent and Stoddard solvent advanced a quarter of a cent to ranges of 4¾ to 5¼ cents, and 4½ to 4¾ cents, respectively. It is reported that several small refiners who have been offering these two grades at extremely low prices have discontinued making these products.

Kerosene Tank Car Markets

The kerosene tank car markets were unchanged in price, with most of the refiners preferring to store material rather than sell at current levels. Demand is comparatively quiet, but stocks are favorable and refiners feel that they will be able to sell in good time.

Distillates and Fuel Oils

Mixed trends are noted in the distillate and fuel oil markets. The higher gravity distillates and fuel oils lost some ground, while the 32-36 straw distillate and the heavier fuel oils advanced or held strongly. The 18-22 zero fuel oil advanced 2½ cents a barrel to a range of 40 to 45 cents, and the below 18 material advanced similarly to a range of 30 to 35 cents. These materials, which are available for use in this district, may be classed as special fuels in respect to viscosity and calorific value. In the higher gravity materials, viscosity is the deciding factor now, naturally, rather than low cold test. The 28-30 zero moved down 5 cents a barrel to a range of 60 to 65 cents; the 26-28 zero moved down 2½ cents to 52½ to 57½ cents, and the 22-26 zero fuel oil is unchanged at 45 to 50 cents.

Wax Continues Strong

Probably the only product which may confidently be expected to continue improvement is refined wax. The refined waxes are in good demand while stocks move lower.

Do You Remember?

From The Oil and Gas Journal Files

25 Years Ago

June 7, 1908

Following the opening last week of the Markham Pool in Texas, work on a 200,000-bbl. earthen tank was commenced, and material for a pipe line to the Southern Pacific tracks has been rushed to the scene, together with derrick timbers and drilling outfits for further development work. The Goose Creek discovery well is shut in and is a mystery.

The Gulf Pipe Line Co. of Louisiana has taken over all the holdings of the Heywood Brothers in the Jennings, Louisiana, Field, paying the brothers $300,000. The deal covers the Heywood interests in several companies.

Production is declining in Oklahoma and less oil was run in May than in any month since January, 1907.

20 Years Ago

June 12, 1913

Leading officials of the U. S. Geological Survey tender P. C. Boyle of Oil City, Pa., a complimentary luncheon at the University Club in Washington, D. C. David T. Day presides. The luncheon is attended by government scientific men and oil executives visiting in Washington.

The Somerset Field in Southwest Texas is opened by a 25-bbl. well on the Kurtz farm, drilled by the Somerset Oil & Gas Co.

Secretary Lane, of the Interior Department, will send a commission to Oklahoma before taking action on the Osage blanket lease.

E. W. Coleman, oil producer, dies in Buffalo, N. Y., age 73 years. He was a pioneer operator in the Bradford Field.

10 Years Ago

June 7, 1923

The Burbank Field in Oklahoma is producing over 100,000 bbls. a day for the first time and Oklahoma in the past week averaged 514,022 bbls. per day, a record production for the State.

The Carter Oil Co. completes a 12,000-bbl. initial producer in the Hewitt Pool in Oklahoma. The well flowed 87,500 bbls. in seven days.

E. R. Perry is chairman of the joint committee on curtailment of production in the Burbank and Tonkawa Fields.

Thirteen tankers carrying 1,100,000 bbls. of oil left Los Angeles Harbor for Atlantic and Gulf Coast ports in the past week.

H. C. Folger is made chairman of the board of directors of the Standard Oil Co. of New York.

The Kosse Field in Limestone County, Texas, has been abandoned. One well, which opened the pool, started at 20,000 bbls. a day. Then it stopped producing. Over $1,000,000 was spent in leases and test work out of which no oil developed.

Gasoline and Lubricating Oil Advances Feature Developments in the East Coast Markets

By A. E. MOCKLER
New York Bureau, The Oil and Gas Journal

NEW YORK, June 5.—Advances in tank car, tank wagon and service station gasoline prices, and increases in refinery quotations for cylinder oils, featured trading in eastern refined products markets last week. Far from having an adverse effect upon demand, the increases in these products served to further stimulate buying, and additional price advances, particularly on motor fuel, are looked for in the near future.

The most encouraging development of the week was the termination of the vicious gasoline price war which has waged between the major and independent New Jersey marketers for several months past. The ending of the "war" officially took place on June 2 when the Standard Oil Co. of New Jersey and other companies revised their quotations in New Jersey, the revisions including advances up to 3 cents per gallon at points where quotations have been abnormally low in recent months due to excessive competition. Simultaneously, the Standard Oil Co. of New Jersey announced revisions in its tank wagon and service station prices in other parts of its territory, with the exception of Delaware, with all quotations based upon the gasoline cargo market at seaboard.

With the conditions in the American oil market showing a rapid improvement, major exporting companies were considerably concerned late in the week in a report from Bucharest that Rumanian oil producers had abrogated their curtailment agreement with the world oil companies, on the ground that the United States had violated the agreement through overproduction and had thus jeopardized the possibility of a rise in the world oil price level. As a result of this action it was expected that Rumania would increase her output from the permitted level of 18,000 metric tons daily to somewhere around 22,000 metric tons per day. It is expected that the world companies signatory to the Rumanian pact will make strenuous efforts to bring about some settlement with that country to protect the progress already made toward the stabilization of world oil markets.

Two one-quarter-cent advances in refinery quotations featured the tank car gasoline market here during the week, and in informed market circles it is indicated that these increases are but the forerunners of a sustained upward movement which is expected to carry tank car gasoline to around 6 cents per gallon at East Coast refineries.

Rumors of pending advances in other refined products, notably bunker "C" oil, are rife in eastern oil trade circles.

Refinery Gasoline

Effective June 1, tank car prices were advanced one-quarter cent per gallon at principal East Coast marketing centers, and late on the same date another quarter cent increase was made effective, bringing prices up to the following levels: U. S. Motor, below 65 octane, New York, Baltimore, and Charleston, 4¾ cents per gallon, Boston 4.90 to 5 cents per gallon; above 65 octane number, New York, Charleston and Baltimore, 5 cents per gallon; Boston, 5 to 5.15 cents per gallon.

Aviation gasoline was also advanced one-half cent per gallon, bringing the tank car market at New York Harbor refineries and terminals to 11 to 12 cents per gallon.

The advances at eastern refineries followed the stiffening in gasoline at the Gulf Coast, and refiners expressed the belief that prices would again move up shortly. Price cutting in tank car markets is less general, and refiners here believe that a tightening in the supply of cheap crude, as indicated by reports from East Texas will mean a definite improvement in the competitive position in East Coast tank car markets.

Kerosene

There was a little improvement in tank car demand reported during the past week, and the market showed a steadier undertone at 4¾ cents per gallon for 41-43 water white, f.o.b. refineries.

Tank wagon kerosene prices were also holding steady throughout the week, no general revisions being reported. Marketers reported that their gallonage was holding up well, and it was expected that in some sections of the territory, notably New York and New England, new volume records for recent years would be established this summer.

Fuel Oil

An advance in bunker "C" oil quotations here is waiting only for an upward movement in posted prices in East Texas, it is indicated. Business was holding up well, and refiners continued to quote 70 to 75 cents per barrel, net, f.o.b. refineries or terminals.

Diesel Oil

A better undertone was evident in this market, although trading continued quiet. Posted prices were unchanged, with $1.65 per barrel, bulk, f.o.b. refineries or terminals, being quoted at principal East Coast ports.

London reports during the week stated that the Royal Mail Steamship Lines was converting two of its 20,000-ton motor liners into steam turbine power, to increase their speed. There has been a marked trend toward high speed steam turbine power in large vessels during the past year, and this tendency is expected to react against further substantial growth in Diesel consumption by large vessels engaged in passenger and mail service. Operators of fast freight services, however, continue to favor motor liners.

Gas Oil

In keeping with the stronger tendency noted in other divisions of the refined products market, gas oil was well maintained during the week, with refiners firm at 4 cents per gallon for 28 gravity minimum oil, f.o.b. refineries in tank car lots.

There was relatively little spot business reported on gas oil, but a good contract movement continued.

Paraffin Wax

Fractional advances were made last week on fully refined grades for domestic shipment, demand showing further improvement. For prompt shipment sellers were quoting 120-122 a.m.p. at 3 cents per pound, 125-127 a.m.p. at 3¼ cents, 130-132 a.m.p. at 3.60 cents, 133-135 a.m.p. at 4.30 cents and 135-137 a.m.p. at 4.60 cents.

Export inquiry was likewise more active during the period. For nearby delivery sellers continued to quote 123-125 a.m.p. at 2⅞ cents, with 125-127 a.m.p. 10 points lower at 2.90 cents, 130-132 a.m.p. unchanged at 3½ cents, 133-135 a.m.p. a quarter cent off at 4 cents, and 135-137 a.m.p. slightly lower at 4.30 cents per pound.

Petrolatum

Anticipating higher prices as a result of the firmness which has developed on other refined products, petrolatum buyers came into last week's market in a larger way, and business picked up considerably.

Sellers have not yet advanced quotations on petrolatum, but the market undertone is stronger, particularly on the white grades, which have been meeting with a more active demand from the pharmaceutical and cosmetics manufacturing trades.

Lubs

Cylinder oils continued to soar last week, advances ranging all the way from three-quarters to 2¾ cents per gallon being made effective. Refiners reported that export buying continued active, in the face of advancing prices, and the belief was expressed that further increases in the near future would not come as a surprise.

Warren 600 E was advanced 2¼ cents to 22¼ cents per gallon during the week, with 600 s.r. unfiltered up 2½ cents at 18½ cents a gallon, and 650 s.r. unfiltered showing a jump of 2¾ cents at 20¾ cents per gallon. The market for 600 flash s.r. was advanced 2¼ cents at 21⅝ cents a gallon with 630 flash s.r. up three-quarters of a cent at 26¾

(Continued on Page 42)

Exports and Imports of Refined Products; Receipts of California Oil in the East

NEW YORK, June 5.—An advance in export gasoline prices and the withdrawal of offerings of crude oil for export at firm prices featured trading in the Gulf export market during the week just ended. The gasoline increase came toward the latter part of the week, and carried asking prices up to 3¾ cents per gallon for U. S. Motor and 4 cents for 64-66 375 endpoint, as contrasted with the previous week's quotations of 3¼ cents and 3⅝ cents, respectively, and actual business during recent weeks under these figures.

The advances in motor fuel prices were more drastic than the trade had anticipated, and buyers withdrew their inquiries from the market, pending further developments in the price situation. At the close of the week it appeared probable that the market would settle at about 3½ cents for U. S. Motor and 3¾ cents for 64-66 375 endpoint, as no actual cargo business had been reported closed at the higher figures.

There were six or seven inquiries for full cargoes of East Texas crude in the market during the week, calling for lifting during July and first half of August, but owing to the refusal of sellers to quote firm prices, none of this business was reported placed up to the close of the week. Advices from East Texas were decidedly bullish during the period, confidential reports indicating that producers are looking for a posted price of 50 cents per barrel in the very near future, with possibly $1 crude by midsummer. Under these conditions, export operators refused to make firm offerings and continued to quote only on the basis of posted prices in the field at time of shipment, plus stated differentials for transportation and handling charges. In as much as buyers still have a few weeks to wait before closing becomes imperative, it appears that the market is in for a period of relative dullness until midmonth or until such time as the expected advance in posted prices in the field materializes.

Imports

Imports of crude and refined oil at the principal United States ports for the week ended May 27 totaled 621,000 bbls., a daily average of 88,714 bbls., as compared with 501,000 bbls., a daily average of 71,571 bbls. for the previous week, and a daily average of 88,786 bbls. for the four weeks ended May 27. All of the week's imports came through New York and Philadelphia, the former port getting 401,000 bbls. and the latter 220,000 bbls. The week's imports comprised 571,000 bbls. of crude and but 50,000 bbls. of fuel oil.

Petroleum Exports

The following table shows exports of principal refined petroleum products reported from the port of New York during the three weeks ended May 27 (all figures in gallons unless otherwise noted):

	Week ended		
	May 27	May 20	May 13
Gasoline	125,000	12,000	50,000
Naphtha	340,000	.....	265,000
Kerosene	147,000	30,000	.....
Fuel and gas oil	225,000	1,000	30,000
Lubricating oil	3,612,000	915,000	1,140,000
Petroleum, ref'd.	260,000	7,900	315,000
	Pounds		
Petrolatum	25,000	.....	.....
Paraffin wax	780,000	2,935,000	2,680,000
Refined	445,000	.....	390,000
Scale	110,000	265,000	940,000
Lub. grease	550,000	925,000	670,000

Notwithstanding further advances in cylinder oil prices in the export market during the week, leading eastern refiners reported that they were getting a continued active demand for prompt shipment oil. Paraffin wax, which also advanced during the week, was likewise moving in better volume into foreign channels, while the demand for other refined products was showing some indications of improvement.

California Oil Receipts

Receipts of California oil at Atlantic Coast ports during the week ended May 27 (there were no receipts of California oil at the Gulf) totaled 550,000 bbls., a daily average of 78,571 bbls., as compared with 149,000 bbls., a daily average of 21,285 bbls. for the previous week and a daily average of 39,429 bbls. for the four weeks ended May 27. Details follow:

	Bbls. of 42 gals.
At Atlantic Coast Ports—	
Baltimore	38,000
New York	128,000
Philadelphia	310,000
Others	74,000
Total	550,000
Daily average	78,571

At the close of the week only one small shipment was reported afloat for East Coast ports, 10,000 bbls. of gasoline on the Standard Oil Co. of California tanker K. R. Kingsbury for Marcus Hook, Pa.

NEWS FOR SALES DEPARTMENTS

Change Design of Tractor Engine for High Octane Fuels

By making inexpensive changes in engines of caterpillar tractors involving increases in compression ratios the Red River Lumber Co. of California has greatly increased the power of the tractors and reduced fuel costs. The amount and scope of the work accomplished by the tractors in carrying on the logging operations of the company have been increased.

The experimental work which preceded the decision to change the design of the engines was conducted in co-operation with the Standard Oil Co. of California. The higher compression engines are using the premium grade of Ethyl Gasoline as fuel. Concerning the results obtained with the tractors having the higher compression engines the Standard Oil Bulletin, official publication of the California Standard, states:

"Where the caterpillar was used for roll-out work it exhibited unusual speed and power, breaking through brush and snow as high as the operator's seat without faltering. Compared with the caterpillar that had not been converted to high compression doing the same work, the Standard Ethyl user showed a saving of 5 gallons of fuel per day. This amounted to a 14 per cent saving in fuel cost, and at the same time about 25 per cent more work was actually accomplished.

"In moving logs to the 'jammer,' where they are loaded on the railway cars, a log arch is used which partially carries the weight of the log and prevents it from stalling. This arch weighs 5 tons, and the log suspended may weigh as much as 20 tons. It was found that with a load of this size the high compressor tractor using Standard Ethyl Gasoline would consistently operate in one transmission gear ratio higher than the other tractors, resulting in much faster movement of the logs. Heavier loads could be carried and steeper grades negotiated; and this, together with the higher speed, made it possible to reach timber that would otherwise have been outside the range of profitable logging. The figures secured by the lumber company showed that the Ethyl user actually did 46 per cent more work, measured in terms of board feet of logs handled, and showed a saving in logging costs of more than 29 per cent. In other words, there was a saving of 16 cents per 1,000 feet of logs, which in large scale operations of this kind is a highly significant figure to the lumberman. In addition, as the officials of the Red River Lumber Co. pointed out, the improved performance of the caterpillar tractors converted to high compression and using Standard Ethyl Gasoline reduces the number of railway spurs required and makes logging feasible that otherwise would require too great an outlay for rail extensions. In this way the value of billions of feet of standing timber is increased.

SHELL GETS LARGE COKE ORDER

NEW YORK, June 5.—Shell Petroleum Corp. is reported to have closed a contract with the Havana Electric Co. for between 90,000 and 100,000 tons of petroleum coke, for delivery during a 12 months' period. The Shell company has chartered the British steamship Gypsum Queen for a minimum of 14 voyages and a maximum of 20 voyages, to move petroleum coke from its loading terminal at Houston to Havana.

Government Suggests New Specifications for Kerosene and Mineral Seal Oils

The Federal Specifications Board, which is now engaged in adopting and promulgating purchase specifications for commercial commodities by the various departments of the U. S. Government, has completed proposed specifications for kerosene, long burning oil and 300° mineral seal oil. These specifications before adopted are being submitted to representative refiners and the board welcomes comment by anyone interested. These comments should be addressed to Federal Specifications Board of the Federal Coordinating Service at Washington, D. C.

Following are the proposed specifications for the three oils:

KEROSENE

Test—	Test number Limit	F.S.B.	A.S.T.M.
Burning test, hr. (min.)	$16	210.62	D187-30
Flashpoint, ° F. (min.)	115	110.11	D56-21
Endpoint, ° C. (max.)	*230	100.14	D86-30
Cloud point ° F. (max.)	5	20.13	D97-30
Flock test	Neg.	130.1	
Sulphur, per cent (max.)	0.13	520.12	D90-30T
Color, Saybolt No. (min.)	+16	10.11	D156-23T

*626° F. †F.S.B.—Federal Specifications Board. ‡A.S.T.M.—American Society for Testing Materials.

§At the end of the burning test the flame shall not be smoky and shall be practically as large as when the final adjustment of the wick was made, the chimney shall be clear or only slightly clouded, and no appreciable hard incrustation shall be on the wick.

LONG-TIME BURNING OIL

Test—	Test number Limit	F.S.B.	A.S.T.M.
Burning test, hr.	§120–156	210.33	D219-30
Flashpoint, ° F. (min.)	115	110.11	D-56-21
Endpoint, ° C. (max.)	*315	100.14	D86-30
Cloud point ° F. (max.)	0	20.13	D97-30
Flock test	Neg.	130.1	
Doctor test	Neg.	520.3	
Sulphur, per cent (max.)	0.10	520.12	D90-30T
Color, Saybolt No. (min.)	+21	10.11	D156-23T

*599° F.

§At the end of the burning test the flame shall not be smoky, the chimney shall be clear or only slightly clouded, and no appreciable hard incrustation shall be on the wick.

300° MINERAL SEAL OIL

Test—	Test number Limit	F.S.B.	A.S.T.M.
Burning test, hr. (min.)	§20	210.43	D239-30
Flashpoint, ° F. (min.)	250	110.32	D92-24
Cloud point ° F. (max.)	32	20.13	D97-30
Flock test	Neg.	130.1	
Reaction test	Neutral	510.1	
Color, Saybolt No. (min.)	+16	10.11	D156-23T

§At the end of the burning test the flame shall not be smoky, the chimney shall be clear or only slightly clouded, and no appreciable hard incrustation shall be on the wick.

M. L. Gosney to Head A.P.I. Group on Credit Practices

M. L. Gosney, Sinclair Refining Co., New York, has been appointed chairman of the Committee on Credit Practices of the American Petroleum Institute Division of Marketing by W. T. Holliday, general chairman. J. A. McNally is secretary of the committee. The appointment of the committee was authorized at a recent meeting of the A.P.I. board of directors. Other members of the committee named by Mr. Holliday to serve during the calendar year 1933, are:

W. C. Wenzel, Richfield Oil Corp. of New York, New York; C. J. Barkdull, Standard Oil Co. (Indiana), Chicago; F. H. Bowman, Pure Oil Co., Chicago; R. H. Colley, Atlantic Refining Co., Philadelphia; H. E. Hartline, Standard Oil Co. of California, San Francisco; S. J. Kane, Tide Water Oil Sales Corp., New York; Charles Klein, Mid-Continent Petroleum Corp., Tulsa; Frank E. Lee, Union Oil Co. of California, Los Angeles; L. C. Lyon, Gulf Refining Co., Pittsburgh; H. G. McLean, Empire Oil & Refining Co., Tulsa; L. D. McKay, Shell Eastern Petroleum Products, Inc., New York; Christy Payne, Standard Oil Co. of New Jersey, New York; W. L. Reed, Shell Petroleum Corp., St. Louis; G. F. Smith, Continental Oil Co., Ponca City; C. E. Votrian, Barnsdall Refineries, Inc., Tulsa; H. R. Wakefield, Sun Oil Co., Philadelphia; W. M. Watson, Standard Oil Co. of New York, New York; O. K. Wing, Phillips Petroleum Co., Bartlesville; and C. E. Woodbridge, Texas Co., New York.

SPEEDWAY WINNER USES TYDOL

Louis Meyer, winner of the Indianapolis Speedway race on Decoration Day, used Tydol gasoline and Veedol motor oil. Both products are manufactured by the Tide Water Oil Co.

Senate to Investigate Gasoline-Alcohol Blends

WASHINGTON, D. C., June 3.—A concurrent resolution has been introduced in the Senate by Senator Bennett Champ Clark of Missouri, authorizing a study of gasoline-alcohol blending, a report to be made to Congress not later than the commencement of the second session of the seventy-third Congress. The resolution provides "that there is hereby established a joint committee to be composed of three senators, to be appointed by the president of the Senate, and three members of the House of Representatives, to be appointed by the Speaker of the House of Representatives. The committee is authorized and directed to make a general study and investigation of the practicability of the use in motor fuel of alcohol produced from domestic agricultural commodities, and the advantages of such use to agriculture, industry, and the public. The committee shall report to the Congress not later than the commencement of the second session of the seventy-third Congress the results of such study and investigation, together with its recommendations for legislation through the exercise of the taxing power or otherwise, to encourage the use of alcohol."—C. E. K.

COSDEN IN ACTIVE CHARGE

FORT WORTH, Tex., June 5.—J. S. Cosden arrived here this week to take active charge of the reorganization of the company which bears his name and to supervise the $250,000 construction program under way at the company's refinery in Big Spring, Tex.

As president of the company, Mr. Cosden will be assisted by A. G. Reed, W. D. Richardson, T. R. Harley and C. D. Hartman as vice presidents. Russell McGee of New York has been named secretary and treasurer. Mr. Richardson will also be in charge of sales.

March Decrease in Motor Fuel Demand About 5 Per Cent

March consumption of gasoline showed about the same decrease when compared with March, 1932, as did February and January, according to data based on gasoline tax collections. According to reports which include the District of Columbia and all states with the exception of New York the March gallonage totaled 1,009,116,000, a decrease of 62,526,000 gallons, or 5.8 per cent when compared with the total for March, 1932. For the first three months of 1933 the gallonage of these same states and the District of Columbia totaled 2,816,651,000, a decrease of 184,017,000 gallons, or 5.1 per cent when compared with the first three months of 1932.

In March, 1933, eight states and the District of Columbia reported more gallonage than March, 1932. The states reporting small increases were Georgia, Michigan, New Jersey, Rhode Island, South Carolina, South Dakota, Utah and Virginia. The following table gives the gallonage by states:

GASOLINE CONSUMPTION BY STATES, MARCH, 1933, and 1932

	Month of March, 1933 (gallons)	Month of March, 1932 (gallons)
Alabama	10,121,000	11,729,000
Arizona	5,428,000	6,332,000
Arkansas	7,303,000	8,177,000
California	109,560,000	115,761,000
Colorado	11,353,000	13,320,000
Connecticut	16,325,000	17,491,000
Delaware	2,423,000	2,975,000
Dist. of Columbia	5,472,000	7,661,000
Florida	19,095,000	20,191,000
Georgia	17,142,000	17,031,000
Idaho	2,522,000	2,845,000
Illinois	66,339,000	69,881,000
Indiana	32,757,000	37,034,000
Iowa	25,451,000	26,426,000
Kansas	23,436,000	26,346,000
Kentucky	11,415,000	11,856,000
Louisiana	11,439,000	13,662,000
Maine	5,191,000	5,436,000
Maryland	13,513,000	14,542,000
Massachusetts	37,624,000	40,562,000
Michigan	52,868,000	52,682,000
Minnesota	27,012,000	28,154,000
Mississippi	7,293,000	9,030,000
Missouri	34,133,000	36,407,000
Montana	4,614,000	4,203,000
Nebraska	13,182,000	16,087,000
Nevada	1,442,000	1,742,000
New Hampshire	2,511,000	2,714,000
New Jersey	52,474,000	52,052,000
New Mexico	3,497,000	3,635,000
North Carolina	16,778,000	17,365,000
North Dakota	6,649,000	7,563,000
Ohio	62,110,000	72,227,000
Oklahoma	19,974,000	23,585,000
Oregon	14,208,000	15,254,000
Pennsylvania	74,930,000	78,136,000
Rhode Island	6,058,000	7,324,000
South Carolina	9,240,000	8,649,000
South Dakota	8,109,000	7,982,000
Tennessee	13,468,000	14,831,000
Texas	56,921,000	61,679,000
Utah	3,774,000	3,424,000
Vermont	2,144,000	2,414,000
Virginia	17,951,000	17,062,000
Washington	19,997,000	21,949,000
West Virginia	5,223,000	5,595,000
Wisconsin	24,935,000	26,510,000
Wyoming	2,138,000	2,286,000
Total	1,009,116,000	1,071,642,000
Daily average	32,553,000	34,569,000
Change from previous year:		
Total decrease	62,526,000	
Percentage decrease in daily average	—5.8%	

NOT TO TAX TRACTOR FUEL

CASPER, Wyo., June 3.—Following the Memorial Day exercises in Newcastle, Governor Leslie A. Miller met a delegation of Osage refiners and announced to them that the order taxing tractor fuel issued from the office of the state treasurer had been withdrawn. He said it was not intended to tax products used for agricultural purposes. The operators agreed to submit samples of their products to the state chemists at Laramie immediately and to follow the specifications to be set up exactly.

THE PERFECT
OFFICIAL INFORMATION BUREAU
MOTOR TO THE WORLD'S FAIR
GASOLINE
CHICAGO
MOTOR TO THE WORLD'S FAIR
MOTOR TO THE WORLD'S FAIR

SALESMAN

...is "World's Fair Conscious"

HE should be instructed to suggest to every customer the idea of Motoring to the World's Fair, and trained to answer typical questions somewhat as follows:

Attendant: "You are going to drive to the World's Fair, aren't you?"

Customer: "Well, I had thought of it but would it be an advantage to have a car?"

A: "It will be a great convenience. First, you can take the whole family to the Fair for the price of one railroad ticket. Second, you will have your car available for side trips to the many points of interest in Chicago outside the Fair and to points along the lake."

Q: "Yes, but how about accommodations for the car and the family?"

A: "Modern villages for motorists, inspected and approved by the Exposition Management have been constructed on the outskirts of Chicago. Each of these will accommodate from 100 to 5,000 persons, per night. They have every facility and convenience of a hotel. Linens are changed daily. They are equipped with private bath, electricity, running water and every modern convenience. They have fire and police protection."

Q. "What are their rates?"

A. "From $1.00 to $1.25 per night, per person, this including private bath, toilet, lavatory, linens, care of apartment and all regular service."

Q. "How about getting to the Fair from these villages?"

A. "The villages have quick and adequate transportation facilities right to the gates of the Fair. These facilities include electric interurban trains and buses with stops right at the villages."

Q. "What would we do with the youngsters?"

A. "Leave them at the Enchanted Island at the Fair where they will have the time of their lives and be watched by trained nurses and attendants while you visit the main section of the Fair. This island is a five-acre Fairyland for children with a miniature zoo, fairy princesses, giants, and everything to delight the heart of every boy and girl."

Q. "What are the parking facilities at the Fair grounds?"

A. "Oil companies and the Fair management have utilized all available space near the Fair for parking facilities. One lot near the Exposition gates has facilities for 7,000 automobiles."

In addition to general information, each oil company should instruct its filling station attendants to have all available information regarding roads and mileage to Chicago. It is estimated the average cost of the trip would be 1¾ cents per mile, per car, for gasoline, lubricating oil and greasing.

To facilitate the oil company's task of providing information, The Oil and Gas Journal has had printed the 4-page folder of general information shown at the right. We will be glad to send you a sample of this folder on request, and quote quantity prices.

Additional information will be supplied gladly and without cost by The Oil and Gas Journal.

MOTOR-TO-CHICAGO NATIONAL CAMPAIGN

Care of The Oil and Gas Journal, TULSA, OKLAHOMA

NEWS FOR PETROLEUM REFINERS

To Start Work on Distillation Units at Reno Refinery

OIL CITY, Pa., June 3.—The Wolverine Empire Refining Co. will start work immediately on a $200,000 construction program at its Reno refinery. The new construction work when completed will mean a complete modernization of the refinery's distillation equipment, present shell still units to be replaced with tube stills.

Two separate tube still units are to be erected, one to be used as a topping still and the other a rerun still. Each unit will incorporate the vacuum method of distillation and each will have a rated daily capacity of 2,000 bbls. The Wolverine company for years has been one of the large manufacturers of Pennsylvania Grade lubricating oils and the new equipment was designed to improve the quality and yields of these products with lower operating costs.

The new units will be located at the east end of the refinery and it is expected that all construction work can be completed in four months. When the new units are operating the present shell still equipment will be dismantled in part. The new equipment will include the latest methods of control and will eliminate a large part of the present rerun operations in the manufacture of lubricants and other products.

In addition to the two tube still units the installation will include 13 storage tanks of 1,200 bbls. capacity each, a brick stack 110 feet in height of attractive design and bearing the name Wolverine Empire, a 98-foot fractionating tower, a two-story brick pump and receiving house and a walkway above the ground through the complete plant. The entire improvement will be of fireproof construction with brick, steel, concrete, glass and metals being used.

The Wolverine Empire company has practically rebuilt its plant in the past three years and in addition has acquired an interest in a Dubbs cracking unit located at McClintockville. Last November the Wolverine completed building a new boiler house, tipple, stokers and complete coal conveying machinery at a cost of $160,000.

SUE EAST TEXAS COMPANY

The Texas Co. has filed suit against East Texas Refining Co. The bill of complaint charges infringement of Behimer patent No. 1,840,012, for apparatus for making gasoline, and Behimer patent No. 1,883,850, for process for making gasoline. The operations complained of are the cracking operations conducted by the East Texas Refining Co. at their refinery at Longview, Tex. The suit, which has been given Equity No. 573, was filed in the U. S. District Court for the Eastern Division of Texas, at Tyler, Tex., on April 5, 1933.

BUILDING PLANT IN KENTUCKY

A. R. Anderson is building a 100-bbl. refinery at Monticello, Ky. The plant will operate under the name of the Wayne County Oil Co. The crude oil to be run at the plant will be obtained from the properties of the Ziegler interests located near the plant.

TESTING NEW PLANT

The Starlight Refining Co.'s 300-bbl. skimming plant at Hatchell, in Runnells County, is now testing and will soon be in operation if the tests prove it ready to turn in the oil which will come from wells in the McMillan Pool, a short distance from the plant.

Work to Start Soon on Major Refinery Project of Pan American Company

One of the largest new refinery projects in recent years will get under way in the near future according to an announcement by officials of the Pan American Petroleum & Transport Co. and its parent company, the Standard Oil Co. (Indiana). The refinery which will be built by the Pan American Refining Corp., a subsidiary recently incorporated in Texas, will be located at Texas City, Tex. The Pan American since 1925 has owned a 267-acre tract of land at that point which will be sufficient for the immediate requirements of the refinery. The company until the decision to build at Texas City has considered sites along the Houston Ship Channel. It is understood that the decision to build at the Gulf Coast will result in the postponement of plans to enlarge the company's refinery at Baltimore, Md.

The initial capacity of the Texas City refinery will be 25,000 bbls. of crude oil daily. The equipment will provide for well balanced cracking operations, a power plant and other modern facilities including large storage.

The project includes a 40-mile extension of the pipe line of the Stanolind Pipe Line Co., a subsidiary of the Standard Oil Co. (Indiana). The latter company operates a 10-inch line with 8-inch loops extending from the Mexia Field to Sinco near Houston. This line until recently was used by the Sinclair interests to transport crude oil from East Texas to its Houston refinery. The Humble Oil & Refining Co. delivered the crude oil to Mexia from East Texas in one of its lines. The Indiana Standard has large crude oil production in East Texas and it is assumed that this crude oil will be made available to the new refinery part of which will be completed before the end of the year. The plant was designed by the manufacturing departments of the Indiana Standard and the Pan American company. Contracts have been let for a part of the new equipment.

The products of the refinery will be handled by the marketing subsidiaries of the Pan American company which has large distributing facilities along the Atlantic Seaboard and nearby states.

To Have Demonstration of Alcohol-Gasoline Blends

WASHINGTON, D. C., June 3.—A demonstration of the alcohol-gasoline blend will be held here June 9 under the supervision of the testing division of the American Automobile Association.

Representative Everett M. Dirksen of Illinois announced this plan today. He is urging the alcohol-gasoline blending plan upon Congress. His intention is to bring relief to the farmer through this blending process which has been widely opposed as injurious rather than to the advantage of the farmer.

Mr. Dirksen today said these tests "would be held under the strictest supervision with all parties interested represented."

Members of Congress, the Bureau of Standards, the American Motorists Association, the petroleum industries, the press and others are invited to witness these tests.

The proponents of this alcohol-gasoline blend, Mr. Dirksen says, claim "it will produce a premium fuel far superior to the ordinary varieties of motor fuel now being used."

Details of the test have not yet been worked out.—C.E.K.

NORTHERN REFINERY PROJECT

CHATHAM, Ontario, June 3.—Announcement has been made by R. C. Fitzsimmons that International Bitumen Co. will this summer build a refining plant in the tar sand area 50 miles north of McMurray, Alberta. Various types of oil and pure asphalt will be produced, and the plant may also produce roofing paints and cement and a bitumen byproduct used extensively in medicine. The plant will utilize processes already worked out in an experimental scale by the Fitzsimmons interests.

TEXAS OUSTER HEARING

AUSTIN, Tex., June 6.—Attorney General Allred's maximum $17,000,000 antitrust penalty and ouster suit against 15 oil companies and the American Petroleum Institute in regard to the petroleum marketing code of ethics was set for trial October 2. Hearings are to be held in Austin.

Increasing Capacity of Great Lakes Pipe Lines

Eight miles of 6-inch pipe is to be laid along the original line of the Great Lakes Pipe Line Co. near Skiatook, Okla. Work will start this week. This announcement follows the purchase of a 4 per cent interest in the company by the Texas Co. A 6-inch line from the Texas Co.'s refinery in West Tulsa to the Great Lakes line, a distance of about 1 mile was completed this week and the laying of a 28-mile pipe line from the Texas Co.'s refinery at Lockport, Ill., is being considered to enable the pipe line delivery of gasoline into Chicago, Milwaukee and for delivery to the lake terminal for tanker shipment.

The 4 per cent interest purchase by the Texas Co. was purchased from Barnsdall Oil Corp., which still holds the second largest interest in the line. Other participants include the Continental Oil Co., Pure Oil Co., Mid-Continent Petroleum Corp., Skelly Oil Co. and Phillips Petroleum Co.

BUILD LINE IN EAST TEXAS

SHREVEPORT, La., June 5.—M. E. Waldron, Arthur O'Quinn and W. S. Mason, of Shreveport, have filed charter for the Apex Pipe Line Co. to build and operate 5 miles of 6-inch line and gathering system in the East Texas Field to deliver crude to the Oil Refineries, Inc., plant at Overton. Mr. Waldron was head of the pipe line department of Louisiana Oil Refining Corp., for about 15 years; Mr. O'Quinn is an attorney, and Mr. Mason was in the accounting department of the Louisiana Oil Refining Corp. for some time. While an independent organization, Mr. Waldron and Mr. Mason are associated with M. J. Grogan and others in Oil Refineries, Inc.

RECONDITIONING ITALO PLANT

The Italo Petroleum Corp. of America is reconditioning its asphalt plant at Long Beach, Calif. The estimated capacity of the plant will be approximately 100 tons per day of asphalts and special grades of fuel oils. The plant is under the supervision of W. D. Rial, formerly refinery superintendent for the Pan American Petroleum Co., Los Angeles.

J. H. Herbert Again Chosen Head of Fire and Safety Workers

BRADFORD, Pa., June 3.—J. H. Herbert of the Standard Oil Co. of Ohio was re-elected president of the Fire and Safety Marshals of the National Petroleum Association, who closed their eighth annual meeting here today. S. M. Wolbert, Kendall Refining Co., was chosen vice president, and D. J. Harvey, Pennzoil Co., secretary and treasurer. Next year's meeting will be held in Warren, Pa.

Morning and afternoon sessions were held at the Bradford Country Club yesterday, the opening day, and this forenoon was devoted to demonstrations by fire-fighting equipment manufacturers, including the Pyrene Manufacturing Co., American LaFrance & Foamite Co., Walter Kiddie Co., National Foam System Co. and Fyr-Fyter Co. The equipment was used on a 30-foot tank fire, a 30-foot pit fire, two pump-house fires, a 20-foot pit fire, smaller pit fires, running fires, etc.

At the opening session, President Herbert, speaking on "Static Electricity in Loading Tank Trucks," said that tests had shown 5,000 volts on tank trucks as they drove into bulk plants for loading. He described means which his company had taken to dissipate these charges before loading the truck. All filling lines are grounded, and a wire is run from the ground rod to the truck before the cover is removed from the filling ports.

H. N. Blakeslee, in charge of the department of accident prevention of the American Petroleum Institute, outlined the improvement made throughout the petroleum industry during the past six years. In 1927 the oil industry was 18 per cent behind all industries in its frequency of accidents, but during 1931 its experience was 6 per cent better. He showed the high cost of accidents to the industry.

J. J. Forbes of the U. S. Bureau of Mines, who has charge of first aid training for the bureau, spoke on "The Value of First Aid Teams in Refineries." He said that an employe trained in first aid had been proven to be four to eight times as safe a worker as an untrained employe. A first-aid contest was held between teams representing the Kendall Refining Co. (two teams), the Quaker State Refining Co. and the Standard Oil Co. of Ohio. The results of the contest will be announced later.

After luncheon, Houston Dunn, manager of the National Petroleum Mutual Fire Insurance Co. spoke on "The Relationship of Fire Prevention to Insurance Rates." C. W. Fick, engineer of the General Electric Co., gave a talk on "The Hazards of Electricity in Refineries." A paper by E. B. Larkin, chief of the Bradford fire department, on "Proper Use and Care of Fire Hose" was read by Willis Crane, associate counsel of the National Petroleum Association. E. B. Follman of the Atlantic Refining Co. described the company's fire brigade at the Point Breeze refinery.

A dinner was held Friday evening at the Holly Hotel. Willis Crane was toastmaster. A most interesting talk was given by R. S. Bonsib of the Standard Oil Co. (New Jersey). The Kendall Refining Co. sponsored the entertainment.

SELL BROWNWOOD PLANT

Cranfill & Reynolds have sold their 1,000-bbl. refinery at Brownwood, Tex., to Harold Ford of Oklahoma City, Okla., who will remodel the plant before starting operations.

Bureau of Mines Statistics for the Month of March, 1933

SUPPLY AND DEMAND OF ALL OILS

(Including wax, coke and asphalt, in thousands of barrels of 42 U. S. gallons)

NEW SUPPLY:	March, 1933	February, 1933*	March, 1932	Jan.-Mar., 1933	Jan.-Mar., 1932
Domestic:					
Crude petroleum	75,302	61,020	67,189	209,329	196,557
Daily average	2,429	2,180	2,167	2,326	2,160
Natural gasoline	2,771	2,542	3,198	8,190	9,688
Benzol†	88	88	117	271	344
Total production	78,161	63,650	70,504	208,790	206,589
Daily average	2,521	2,274	2,274	2,320	2,270
Imports:					
Crude petroleum	3,803	2,369	4,849	9,003	11,595
Refined products	1,506	1,615	4,028	4,296	11,114
Total new supply, all oils	83,470	67,644	79,372	222,089	229,298
Daily average	2,693	2,416	2,560	2,468	2,520
Increase in stocks, all oils	8,114	1,097	123	4,987	409
DEMAND:					
Total demand	75,356	66,547	79,249	217,102	228,889
Daily average	2,431	2,377	2,556	2,412	2,515
Exports:					
Crude petroleum	2,137	1,886	2,090	5,960	5,579
Refined products	5,418	4,480	7,051	16,214	19,973
Domestic demand	67,801	60,181	70,108	194,928	203,337
Daily average	2,187	2,149	2,262	2,166	2,234
Excess of daily average domestic production over domestic demand	334	125	12	154	36
STOCKS (end of month):					
Crude petroleum:					
East of California	301,799	295,092	329,144	301,799	329,144
California‡	39,909	39,968	42,259	39,909	42,259
Total refinable crude	341,708	335,060	371,403	341,708	371,403
Natural gasoline§	3,548	3,397	4,035	3,548	4,035
Refined products‡	247,840	246,535	257,594	247,840	257,594
GRAND TOTAL STOCKS ALL OILS	593,096	584,982	633,032	593,096	633,032
Days' supply	244	246	248	246	252
Bunker oil (included above in domestic demand)	2,812	2,779	3,499	8,293	9,666

*Revised. †Based upon production of coke reported to Coal Division by those by-product coke plants that recover benzol products. ‡California heavy crude and residual fuel included under refined products. §Includes motor blends held at natural gasoline plants.

COMPARATIVE ANALYSES

(Thousands of barrels of 42 U. S. gallons)

	March, 1933		Feb., 1933		Jan.-Mar.,	Jan.-Mar.,
CRUDE PETROLEUM:	Total	Daily av.	Total	Daily av.	1933	1932
Runs to stills:						
Domestic	64,768	2,087	58,238	2,080	186,245	191,372
Foreign	3,276	106	2,804	100	8,874	9,759
Total	67,984	2,193	61,042	2,180	195,119	201,031
Imports	3,803	123	2,369	85	9,003	11,595
Exports	2,137	69	1,886	67	5,960	5,579
MOTOR FUEL:						
Production	32,362	1,044	28,307	1,011	91,645	99,236
Imports	3	.....	.....	.....	3	3,646
Exports*	2,363	76	1,971	70	6,848	9,310
Stocks, gasoline	57,008	.....	55,384	.....	57,008	63,725
Stocks, natural gasoline	3,548	.....	3,397	.....	3,548	4,035
Domestic demand	28,227	911	23,312	833	78,049	80,938
KEROSENE:						
Production	3,877	125	3,691	132	11,931	10,532
Imports	.....	.....	.....	.....	.....	4
Exports	649	21	637	23	2,173	2,843
Stocks	4,827	.....	4,574	.....	4,827	4,539
Domestic demand	2,975	96	3,274	117	9,905	8,477
GAS OIL AND FUEL OIL:						
Production	26,091	842	23,697	843	75,452	75,838
Transfers†	984	32	952	35	3,038	1,563
Imports	1,480	48	1,600	57	4,221	7,476
Exports	1,469	47	1,154	41	4,718	5,370
Stocks	123,825	.....	1124,208	.....	123,825	126,251
Domestic demand	27,469	886	27,156	970	83,139	89,102
LUBRICANTS:						
Production	1,794	58	1,621	58	5,242	6,022
Imports	.....	.....	.....	.....	.....	6
Exports	751	24	594	18	1,802	1,831
Stocks	8,712	.....	8,812	.....	8,712	9,355
Domestic demand	1,143	37	1,101	39	3,103	4,327
WAX (thous. of pounds):						
Production	36,400	1,174	28,000	1,000	101,980	139,160
Imports	956	31	2,971	106	7,475	16,576
Exports	22,462	725	18,924	676	62,845	56,364
Stocks	126,785	.....	147,849	.....	126,785	182,974
Domestic demand	25,958	837	24,438	873	72,553	87,618
COKE (short tons):						
Production	147,000	4,742	106,900	3,818	348,809	433,000
Stocks	1,148,500	.....	1,171,800	.....	1,148,500	1,436,100
ASPHALT (short tons):						
Production	123,800	3,994	94,700	3,382	320,300	441,700
Imports (natural)	3,400	110	400	14	7,300	4,300
Stocks	304,400	.....	294,400	.....	304,400	351,200
ROAD OIL:						
Production	219	7	175	6	501	413
Stocks	803	.....	669	.....	803	618
STILL GAS:						
Production	3,368	109	2,914	104	9,506	9,436
MISCELLANEOUS:						
Production	112	4	102	4	311	660
Stocks	425	.....	415	.....	425	632

*Includes benzol—no barrels in March, 1933. †Includes crude used as fuel and net transfers to fuel oil stocks. ‡Effective December 31, 1932, 1,000,000 bbls. deleted by inventory adjustment.

INDICATED DOMESTIC DEMAND FOR CRUDE PETROLEUM

(Thousands of barrels of 42 U. S. gallons)

Domestic petroleum by fields of origin:	March, 1933		Feb., 1933*		Jan.-Mar.,	Jan.-Mar.,
	Total	Daily av.	Total	Daily av.	1933	1932
Appalachian:						
Pennsylvania Grade	1,727	56	1,557	56	5,047	5,204
Other (inc. Kentucky)	510	16	426	15	1,496	2,052
Lima-N. E. Ind.-Mich.	664	21	614	22	1,922	1,640
Ill.-S. W. Ind.	358	12	267	10	926	943
Mid-Continent:						
N. La. and Ark.	1,406	45	1,213	79	5,739	6,980
W. Texas-S. E. N. Mex.	6,955	225	5,034	180	18,364	20,525
Other (Okla., Kans., N. Tex., etc.)	36,149	1,166	32,238	1,151	102,375	100,306
Gulf Coast	6,657	215	5,251	188	17,443	12,194
Rocky Mountain	1,046	34	1,008	36	3,243	3,583
California	12,633	408	11,605	414	37,671	44,589
Total demand	68,135	2,198	60,215	2,151	194,227	198,521
Exports	2,137	69	1,886	68	5,960	5,579
Domestic demand	65,998	2,129	58,329	2,083	188,267	192,942
Foreign petroleum	3,481	112	2,105	75	8,373	8,156
Total domestic demand	69,479	2,241	60,434	2,158	197,640	201,098

*Revised.

PRODUCTION OF CRUDE PETROLEUM BY STATES AND PRINCIPAL FIELDS

(Thousands of barrels of 42 U. S. gallons)

	March, 1933		Feb., 1933		Jan.-Mar.,	Jan.-Mar.,
	Total	Daily av.	Total	Daily av.	1933	1932
Arkansas	949	30	821	29	2,713	2,947
California:						
Kettleman Hills	1,846	60	1,611	57	5,353	5,461
Long Beach	1,935	62	1,943	70	6,013	7,335
Santa Fe Springs	1,509	49	1,472	53	4,675	5,936
Rest of State	8,135	262	8,061	288	25,042	26,943
Total California	13,415	433	13,107	468	40,983	45,725
Colorado	87	3	74	3	249	327
Illinois	314	10	263	9	874	1,296
Indiana:						
Southwestern	51	2	44	2	143	204
Northeastern	1	.....	1	.....	3	8
Total Indiana	52	2	45	2	146	212
Kansas	3,597	116	2,806	100	9,336	8,569
Kentucky	380	12	336	12	1,154	1,486
Louisiana:						
Gulf Coast	1,127	36	920	33	3,033	2,560
Rest of State	924	30	739	26	2,539	2,376
Total Louisiana	2,051	66	1,659	59	5,632	4,936
Michigan	441	14	381	14	1,269	1,327
Montana	159	5	136	5	464	593
New Mexico	1,175	38	1,024	37	3,202	3,401
New York	272	9	240	9	765	918
Ohio:						
Central and Eastern	278	9	249	9	800	869
Northwestern	84	3	69	2	239	256
Total Ohio	362	12	318	11	1,039	1,125
Oklahoma:						
Oklahoma City	6,207	200	4,204	150	13,632	10,065
Seminole	3,419	110	3,040	109	9,863	11,487
Rest of State	6,073	196	5,566	199	17,496	18,054
Total Oklahoma	15,699	506	12,810	458	40,991	39,606
Pennsylvania	1,011	33	902	32	2,887	3,076
Tennessee	.....	.....	.....	.....	1	1
Texas:						
Gulf Coast	4,521	146	3,628	130	11,962	9,394
West Texas	4,974	160	4,577	163	14,511	16,358
East Texas	17,360	560	10,645	380	38,452	29,427
Rest of State	7,217	233	6,127	219	20,009	21,412
Total Texas	34,072	1,099	24,977	892	84,935	76,591
West Virginia	286	9	262	9	842	963
Wyoming:						
Salt Creek	638	21	566	20	1,865	2,051
Rest of State	347	11	302	11	993	1,388
Total Wyoming	980	32	868	31	2,858	3,439
Total U. S.	75,302	2,429	61,029	2,180	200,329	196,557

GASOLINE PRODUCTION BY THE VARIOUS METHODS, MARCH, 1933

(Thousands of barrels of 42 U. S. gallons)

	Straightrun			Cracked			Nat. gasoline	Gasoline	
		Per cent			Per cent		Per cent		Per cent
	Total	(*)	(†)	Total	(*)	(†)	(†)	Total	(*)
East Coast	2,589	18.4	46.0	3,011	21.5	53.5	2.5	5,623	39.9
Appalachian	548	22.4	44.6	668	27.4	54.3	1.1	1,230	49.8
Ind., Ill., etc.	2,276	24.3	44.1	2,774	29.6	53.7	2.3	5,161	53.9
Okla., Kans., Mo.	1,161	25.9	50.3	1,740	38.8	40.5	2.4	4,295	52.2
Texas, inland	1,516	34.8	63.5	629	14.5	36.3	10.2	2,338	49.3
Texas, Gulf	2,685	21.4	47.2	2,800	22.4	49.2	2.6	5,687	43.8
Louisiana, Gulf	546	16.2	44.4	642	19.1	52.1	2.5	1,231	35.8
Ark. and La., inland	241	21.5	49.8	211	19.0	45.6	4.7	694	41.7
Rocky Mountain	315	31.4	48.8	258	25.7	40.0	11.2	645	57.1
California	3,110	26.2	67.2	811	6.8	17.5	707	15.3	4,628	38.9
Total	16,087	23.6	51.0	13,644	20.1	43.2	1,846	5.8	31,577	43.7

*Per cent of crude run. †Per cent of total gasoline output.

STOCKS OF CRUDE PETROLEUM

(Thousands of barrels of 42 U. S. gallons)

EAST OF CALIFORNIA:	March 31, 1933	Feb. 28, 1933*	March 31, 1932
At refineries by location:			
East Coast: Domestic	8,324	7,978	7,694
Foreign	5,134	4,748	6,402
Appalachian	2,340	2,317	3,157
Indiana, Illinois, Kentucky, Michigan	3,658	3,758	3,840
Oklahoma, Kansas, and Missouri	4,482	4,021	5,558
Texas: Inland	1,916	1,546	1,338
Gulf Coast: Domestic	6,436	5,912	6,900
Foreign	79	115	187
Louisiana Gulf Coast: Domestic	2,926	3,028	3,520
Foreign	1,021	1,049	1,344
Arkansas and Inland Louisiana	450	421	495
Rocky Mountain	12,132	11,884	1,983
Total	48,889	46,797	40,108
At refineries by origin:			
Pennsylvania Grade	2,191	2,170	2,963
Other Appalachian (inc. Kentucky)	621	632	776
Lima-N. E. Indiana-Michigan	175	223	189
Illinois-S. W. Indiana	111	110	138
N. Louisiana and Arkansas	2,072	2,026	1,464
West Texas and S. E. New Mexico	4,467	4,327	3,575
Oklahoma, Kansas, N. Texas, etc.	16,696	14,543	17,304
Gulf Coast	4,218	4,701	4,423
Rocky Mountain	12,103	11,853	1,831
Foreign	6,234	5,912	7,989
Total	48,889	46,797	40,108
Pipe line and tank farm:			
Pennsylvania Grade	4,599	4,649	4,314
Other Appalachian (inc. Kentucky)	986	955	995
Lima-N. E. Indiana-Michigan	692	779	1,591
Illinois-S. W. Indiana	11,318	11,288	10,375
N. Louisiana and Arkansas	11,363	10,943	15,606
West Texas and S. E. New Mexico	30,797	31,763	34,163
Oklahoma, Kansas, North Texas, etc.	160,742	155,676	177,884
Gulf Coast	9,821	10,428	13,651
Rocky Mountain	16,031	16,064	24,100
Total	246,460	242,545	282,184
Total refinery, pipe line and tank farm	295,349	289,343	323,292
Producers'	6,450	5,750	5,852
Total crude east of California	301,799	295,093	329,144
CALIFORNIA: Light	39,909	39,968	42,259
Total refinable crude in United States	341,708	335,060	371,403

*Revised.

SHIPMENTS FROM CALIFORNIA TO EASTERN PORTS IN THE UNITED STATES*
(Thousands of barrels of 42 U. S. gallons)

	Mar., 1933	Feb., 1933	Mar., 1932	Jan.-Mar., 1933	Jan.-Mar., 1932
Gasoline	596	678	1,046	1,844	1,721
Natural gasoline	0	0	0	81	73
Kerosene	0	224	0	629	0
Gas oil and Diesel oil	149	258	117	1,127	117
Fuel oil	145	159	0	377	0
Lubricants	0	8	0	8	10
Asphalt	0	0	1	0	3
Miscellaneous	73	15	1	104	2
Total	963	1,342	1,165	4,170	1,926

*Compiled by E. T. Knudsen, of the San Francisco office of the Bureau of Mines.

NUMBER OF WELLS COMPLETED IN THE UNITED STATES*

	Mar., 1933	Feb., 1933	Mar., 1932	Jan.-Mar., 1933	Jan.-Mar., 1932
Oil	486	485	664	1,610	1,881
Gas	57	76	84	211	318
Dry	284	312	245	862	681
Total	827	873	1,003	2,683	2,880

*From The Oil and Gas Journal and California office of the American Petroleum Institute.

RECORD OF WELLS FOR IMPORTANT FLUSH FIELDS, MARCH, 1933*

	Completions: Oil	Gas	Dry	Total initial production (bbls.)	Average initial production (bbls.)	Drilling Mar. 31
Texas	315	11	161	444,700	1,400	690
East Texas†	124	0	4	248,000	2,000	74
Gulf Coast	114	1	32	156,900	1,500	146
West Texas	13	0	5	1,100	100	91
California	10	0	6	8,400	840	108
Kettleman Hills	1	0	0	3,500	3,500	13
Long Beach	3	0	0	1,000	300	19
Playa Del Rey	0	0	0	0	0	3
Oklahoma	49	6	25	10,250	200	280
Oklahoma County	0	0	0	0	0	27
Pottawatomie County / Seminole County	5	0	1	200	0	31
New Mexico	6	0	1	21,200	3,500	53
Lea County (Hobbs)	5	0	0	21,100	4,200	11
Other states	106	40	91	24,000	200	810
Total United States	486	57	284	508,500	1,000	1,946

*From The Oil and Gas Journal and California office of the American Petroleum Institute. †Initial production for the East Texas Field calculated from field reports.

RUNS TO STILLS AND OUTPUT OF REFINERIES, MARCH, 1933
(Thousands of barrels of 42 U. S. gallons)

INPUT—	Crude oil: Domestic	Foreign	Total	Unfinished oils rerun	Natural gasoline	Total input
East Coast	10,813	3,222	14,035	616	28	14,679
Appalachian	2,443	.....	2,443	303	14	2,760
Ind., Ill., Ky., etc.	9,367	.....	9,367	288	111	9,766
Okla., Kans., Mo.	7,479	.....	7,479	362	394	8,235
Texas Inland	4,355	.....	4,355	93	243	4,696
Texas Gulf	13,479	36	13,515	799	202	13,505
Louisiana Gulf	3,343	18	3,361	20	43	3,424
Ark. and La. Inland	1,562	.....	1,562	328	32	1,922
Rocky Mountain	1,002	.....	1,002	83	72	1,158
California	11,864	.....	11,864	196	*707	12,767
Total	64,703	3,276	67,984	3,082	1,846	72,912

OUTPUT—	Gasoline	Kerosene	Gas oil and distillate fuels	Residual fuel oils	Lubricants	Wax (thousands pounds)
East Coast	5,628	843	1,364	4,207	609	19,600
Appalachian	1,230	235	136	348	317	5,329
Ind., Ill., Ky., etc.	5,161	322	651	1,453	137	1,680
Okla., Kans., Mo.	4,295	556	558	1,441	160	1,960
Texas Inland	2,358	239	281	1,321	19	280
Texas Gulf	5,657	863	1,677	3,201	342	3,640
Louisiana Gulf	1,231	362	329	987	23	2,240
Ark. and La. Inland	684	67	193	513	5	.....
Rocky Mountain	645	91	77	191	20	1,680
California	4,628	339	1,579	5,564	161	.....
Total	†31,577	3,877	6,845	19,246	1,794	36,400

OUTPUT (Cont.)—	Coke (tons)	Asphalt (tons)	Road oil	Still gas	Miscellaneous	Unfinished products	Shortage
East Coast	18,400	57,100	16	798	27	633	78
Appalachian	2,400	4,400	5	172	19	149	103
Ind., Ill., Ky., etc.	58,000	22,700	51	763	10	792	—25
Okla., Kans., Mo.	23,000	3,300	62	317	25	429	252
Texas Inland	4,200	.....	17	85	8	67	249
Texas Gulf	29,800	5,000	4	806	3	490	226
Louisiana Gulf	3,200	4,900	.....	127	.....	257	57
Ark. and La. Inland	200	5,600	.....	45	.....	334	48
Rocky Mountain	7,000	.....	14	55	5	46	13
California	800	17,800	50	200	15	53	86
Total	147,000	123,800	219	3,368	112	3,241	1,087

*Includes 96,000 bbls. run through pipe lines. †Includes 473,000 bbls. special naphthas.

CRACKING OPERATIONS

Fresh cracking stock charged to stills, bbls.	32,246,000
Gasoline produced by cracking, bbls.	13,644,000
Fuel oil produced by cracking, bbls.	10,830,000

PRODUCTION OF CRUDE PETROLEUM BY DISTRICTS
(Thousands of barrels of 42 U. S. gallons)

	March, 1933: Total	Daily av.	Feb., 1933: Total	Daily av.	Jan.-Mar., 1933	Jan.-Mar., 1932
Appalachian:						
Pennsylvania Grade	1,698	55	1,523	54	4,872	5,365
Other (inc. Kentucky)	529	17	466	17	1,577	1,947
Lima-N. E. Ind.-Mich.	526	17	451	16	1,511	1,601
Ill.-S. W. Ind.	365	12	307	11	1,017	1,500
Mid-Continent:						
N. La. and Ark.	1,873	60	1,560	55	5,252	5,323
W. Texas-S. E. New Mex.	6,117	197	5,578	199	17,634	19,664
Other (Okla., Kans., N. Tex., etc.)	43,873	1,415	33,388	1,157	108,788	99,014
Gulf Coast	5,648	182	4,548	163	15,046	11,954
Rocky Mountain	1,258	41	1,101	40	3,650	4,464
California	13,415	433	13,107	468	40,982	45,725
Total	75,302	2,429	61,029	2,180	200,329	196,557

SHIPMENTS OF MOTOR FUEL BY PIPE LINES
(Thousands of barrels of 42 U. S. gallons)

	Mar., 1933	Feb., 1933	Mar., 1932	Jan.-Mar., 1933	Jan.-Mar., 1932
Motor fuel turned into lines	2,821	2,394	2,274	7,631	6,375
Motor fuel delivered from lines	2,800	2,302	2,162	7,539	6,034
Shortage	2	1	4	8	18
Stocks in lines and working tanks end of month	1,282	1,263	1,285	1,282	1,285

STOCKS HELD BY REFINING COMPANIES, MARCH 31, 1933
(Thousands of barrels of 42 U. S. gallons)

	Gasoline: At refineries	Bulk and pipe lines*	Total	Kerosene	Gas oil and distillate fuels	Residual fuel oils
East Coast	5,903	10,259	16,162	1,036	2,195	3,926
Appalachian	1,611	766	2,377	244	508	218
Ind., Ill., Ky., etc.	5,966	2,561	8,527	433	1,353	1,851
Okla., Kans., Mo.	4,366	1,679	6,045	249	995	2,184
Texas inland	1,961	186	2,147	97	463	2,571
Texas Gulf	5,454	137	5,591	831	2,179	4,479
Louisiana Gulf	1,624	219	1,843	348	979	1,610
Ark. and La. inland	293	112	405	20	129	595
Rocky Mountain	1,586	0	1,586	119	163	286
California	8,118	4,207	12,325	1,215	2,653	†94,554
Total	36,882	20,126	57,008	4,827	11,557	112,268

	Wax (thousands of pounds): Lubricants	Crude scale	Refined	Total	Coke (tons)
East Coast	2,884	20,082	15,520	35,602	11,400
Appalachian	1,184	18,186	2,002	20,189	5,500
Ind., Ill., Ky., etc.	990	19,344	1,343	20,687	56,000
Okla., Kans., Mo.	535	1,652	1,405	3,057	121,600
Texas inland	56	0	306	306	113,500
Texas Gulf	1,351	1,733	11,716	13,449	544,400
Louisiana Gulf	99	7,742	5,811	13,553	28,800
Ark. and La. inland	9	0	0	0	100
Rocky Mountain	187	28,652	1,290	29,942	103,600
California	827	0	0	0	103,300
Total	8,713	97,391	39,394	136,785	1,148,500

	Asphalt (tons)	Road oil	Miscellaneous products	Unfinished oils	Natural gasoline
East Coast	109,600	93	69	7,342	87
Appalachian	10,900	25	24	1,776	2
Ind., Ill., Ky., etc.	75,900	53	58	7,076	36
Okla., Kans., Mo.	3,200	203	21	3,731	27
Texas inland	0	24	6	1,022	3
Texas Gulf	6,300	11	12	11,264	185
Louisiana Gulf	21,200	6	0	1,521	0
Ark. and La. inland	31,600	0	3	535	8
Rocky Mountain	2,600	150	8	2,177	1
California	43,100	238	194	‡7,590	2,440
Total	304,400	803	425	44,334	2,789

	May, 1932	June, 1932	July, 1932	Aug., 1932	Sept., 1932	Oct., 1932	Nov., 1932
East Coast	12,928	12,451	12,946	11,205	10,141	9,182	8,688
Appalachian	933	1,067	1,069	1,011	948	936	975
Ind., Ill., Ky., etc.	2,522	2,411	2,529	2,492	2,682	2,950	3,460
Okla., Kans., Mo.	1,686	1,650	1,577	1,501	1,477	1,388	1,300
Texas inland	219	179	178	161	143	172	153
Texas Gulf	427	470	368	434	260	263	364
Louisiana Gulf	410	443	471	252	257	252	255
Ark. and La. inland	191	132	106	89	68	74	85
California	4,938	4,458	4,753	4,652	4,360	4,265	4,314
Total	24,254	23,261	23,937	21,799	20,336	19,514	19,594

*Comparable figures including revisions (thousands of barrels). †Effective December 31, 1932, 1,000,000 bbls. deleted by inventory adjustment. ‡Includes 4,481,000 bbls. tops—165,000 bbls. lost in earthquake in March.

RECEIPTS OF CRUDE PETROLEUM ON THE ATLANTIC SEABOARD
(Barrels of 42 U. S. gallons)

Domestic:	Feb., 1933	Foreign:	Feb., 1933
Pennsylvania Grade	332,000	Venezuela	1,431,000
West Texas-S. E. N. Mex.	2,124,000	Colombia	1,006,000
East Texas	3,250,000	Mexico	204,000
Other Mid-Continent	957,000		
Gulf Coast	3,347,000	Total	2,641,000
Total	10,020,000	Total receipts	12,661,000

Mid-Continent Refiners to Run More Crude This Month

(Continued from Page 8)

REFINERY OPERATIONS IN EAST TEXAS
(Plants which have been in operation during the past year)

Company and location—	Daily capacity	Aver. daily runs: June	May
Alamo Refining Co., Camps Switch	2,500	2,400	2,200
Arp Refining Co., Arp	2,000	1,375	2,000
Arrow Refining & Producing Co., Overton	2,500	1,850	1,300
Beacon Oil & Refining Co., Henderson	4,500	3,000	3,000
Bluebonnett Refining Co., Kilgore	200	180	(*)
Canyon Refining Co., Kilgore	200	170	50
Carnation Refining Corp., Gladewater	200	240	150
Central Refining Co., Friars Switch	7,500	5,000	5,000
Chief Refining Co., Gladewater	1,000	650	600
Cook (R. X.), Gladewater	200	80	100
Danciger Oil & Refining Co., Longview	10,000	6,000	7,500
Dutch Rose Refining Co.	100	80	(*)
East Texas Refining Co., Longview	10,000	8,500	8,000
Foshee Refining Co., Gladewater	500	350	(*)
Gladetex Refining Co., Gladewater	500	150	150
Gilliland Refining Co., Gladewater	1,500	1,350	1,300
Hartafield Refining Co., Kilgore	200	80	105
Henderson Refining Co., Henderson	6,000	5,000	5,000
Johnsonville Refining Co., Omega	200	100	90
Kilgore Refining Co., Kilgore	2,500	2,400	2,100
Lake Refining Co., Gladewater	500	230	180
Locke Refining Co., Gladewater	600	540	200
Arpana Refining Co., Arp	2,000	2,000	1,400
Oil Refineries, Inc., Overton	4,000	3,500	2,300
Overton Refining Co., Overton	3,500	2,600	2,500
Panama Refining Co., Kilgore	250	150	(*)
Pennant Refining Co., Kilgore	250	220	160
Recla Refining Co., Turnerstown	200	20	20
Reese Refining Co., Arp	200	(*)	(*)
Reinhart Refinery Co., Gladewater	300	300	215
Rocket Refining Co., Kilgore	200	130	(*)
Shoreline Refining Co., Kilgore	300	260	300
Sinclair Refining Co., Camps Switch	5,000	2,000	1,800
Smith & Maxey Refining Co., Kilgore	200	100	85
Solar Refining Co., Overton	3,000	(†)	(*)
Southern Oil Refining Co., Reeds Switch	2,500	2,000	2,000
Taylor Refining Co., Tyler	15,000	12,000	12,000
Texas Oil Products Co., Gladewater	2,000	1,750	1,500
Thrasher Refining Co., Gladewater	300	(*)	(*)
Tyler Refining Co., Longview	1,000	880	350
Trinity Refining Co., Gladewater	500	500	300
Union Refining Co., Camps Switch	3,000	2,000	(*)
Unit Refining Co., Kilgore	200	107	75
Upshur Refining Co., Gladewater	300	175	(*)
Total		94,900	70,417	62,190

*Shut down. †Cracking only.

(Continued on Next Page)

SATISFACTION FROM YOUR INVESTMENT IN PUMPING EQUIPMENT

YOUR initial selection of Pumping Equipment determines, in a large measure, the degree of satisfactory returns you obtain from your pumping properties.

The FRICK-REID Organization has specialized in Pumping Equipment for many years—working in close co-operation with production men and reputable manufacturers who have spent years of intensive effort in the development and manufacture of QUALITY Equipment—to meet the specific pumping problems encountered in different oil fields. This wealth of experience and training is available at all times to aid in selecting the correct type of pumping equipment best adapted to produce the maximum recovery from your wells. We welcome an opportunity to discuss with you the various pumping problems with which you are confronted.

OF PROVEN MERIT FOR PUMPING

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The Super-Service No. 60 Rod is made of special analysis steel to give extreme strength and stamina to handle the deepest, heaviest loads and to offer greater resistance to the destructive conditions encountered in any well.

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Pull rods—the economical rod for all fields.

Pumps (Working Barrels). The Axelson pumps will bring your oil out in maximum quantity at minimum cost. There is a type to meet every pumping condition.

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OUR Pumping Belts are manufactured of the finest materials and exceed A.P.I. specifications. Our belting facilities enable us to make quick shipments of endless belts to your order.

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OUR FACILITIES FOR INSTALLING COMPLETE OIL WELL PUMPING SYSTEMS ARE UNEXCELLED. YOUR INQUIRIES REGARDING THIS SERVICE ARE INVITED.

FRICK-REID SUPPLY CORPORATION

PITTSBURGH, PENNA.—TULSA, OKLA.

REFINERY OPERATIONS IN KANSAS
(Plants which have been in operation during the past year)

Company and location—	Daily capacity	Aver. daily runs June	Aver. daily runs May
Altitude Petroleum Corp., Chanute	5,000	(†)	300
Altitude Petroleum Corp., Kansas City, Mo.	3,000	600	500
Barnsdall Refineries, Inc., Wichita	4,000	1,900	2,000
Derby Oil Co., Wichita	7,500	4,500	4,200
Dickey Refining Co., McPherson	5,000	1,000	1,200
Eldorado Refining Co., Eldorado	4,500	3,000	3,000
Falcon Refining Co., Inc., Great Bend	800	500	(*)
Globe Refining Co., McPherson	10,000	7,000	7,500
Golden Rule Refining Co., Wichita	1,500	800	800
Kanotex Refining Co., Arkansas City	12,000	6,500	6,500
National Refining Co., Coffeyville	6,500	5,000	5,000
Phillips Petroleum Co., Kansas City	15,000	3,500	3,500
Shell Petroleum Corp., Arkansas City	22,000	10,000	8,000
Sinclair Refining Co., Coffeyville	12,000	9,500	9,500
Sinclair Refining Co., Argentine	9,500	5,000	5,000
Skelly Oil Co., Eldorado	22,000	14,000	11,000
Standard Oil Co. of Kansas, Neodesha	20,000	3,500	3,500
Sunflower Refining Co., Hutchinson	2,000	400	400
Vickers Petroleum Co., Potwin	3,500	2,500	3,000
White Eagle Oil Corp., Augusta	16,000	14,500	14,500
Total	174,800	98,700	94,900

*Shut down. †Cracking only.

REFINERY OPERATIONS IN NORTH CENTRAL TEXAS
(Plants which have been in operation during the past year)

Company and location—	Daily capacity	Aver. daily runs June	Aver. daily runs May
Abilene Refining Co., Abilene	500	(*)	100
Allstate Refining Co., Thrall	3,000	(*)	(*)
American Refining Properties, Wichita Falls	6,000	(*)	(*)
Archer Refining Co., Megargel	1,500	400	400
Atlantic, Pacific & Gulf Refining Co., Wichita Falls	5,000	(*)	(*)
Bobrose Oil & Refineries, Brownwood	2,000	(*)	(*)
Continental Oil Co., Wichita Falls	6,000	4,000	4,000
Dale Oil & Refining Co., Electra	4,000	(*)	(*)
Danciger Oil & Refining Co., Pampa	6,500	4,500	4,500
Empire Oil & Refining Co., Gainesville	5,000	3,200	3,000
Exchange Petroleum Corp., Albany	500	300	170
Falls Refining Co., Wichita Falls	2,000	550	300
Gratex Refining Co., Graham	500	120	130
Gulf Refining Co., Fort Worth	10,000	6,000	5,000
Haskell Oil Refining Co., Breckenridge	200	200	100
Humble Oil & Refining Co., Breckenridge	2,000	(*)	(*)
Humble Oil & Refining Co., Chilton	4,000	(*)	(*)
Humble Oil & Refining Co., Neches	5,000	900	900
Iowa Park Producing & Refining Co., Iowa Park	2,500	(*)	(*)
Jacksboro Refining Co., Jacksboro	400	100	(*)
Johnson (W. E.) and associates, Wichita Falls	200	(*)	(*)
Kent Refining Co., Minerva	2,000	250	250
Kent Refining Co., Angus	4,000	(*)	(*)
LaSalle Petroleum Co., Burkburnett	3,500	320	200
Macmillan Petroleum Co., Isom	5,000	(*)	(*)
Magnolia Petroleum Co., Fort Worth, No. 1	12,000	5,000	5,000
Magnolia Petroleum Co., Fort Worth, No. 2	6,000	(*)	(*)
Magnolia Petroleum Co., Corsicana	5,000	600	600
Marathon Oil Co., Fort Worth	5,000	4,000	4,000
Master Petroleum Co., Waco	750	300	400
Moon Refining Co., Graham	300	(*)	(*)
Muenster Refining Co., Muenster	300	30	30
Olney Oil & Refining Co., Olney	2,500	2,000	2,000
Oriental Oil Co., Dallas	5,000	1,200	1,200
Panhandle Refining Co., Wichita Falls	5,000	2,500	2,320
Panhandle Refining Co., Kings Mill	3,500	1,000	1,200
Paragon Refining Co., Leuders	500	300	(*)
Phillips Petroleum Co., Isom	30,000	18,000	18,000
Phoenix Refining Co., Inc., Dallas	3,000	500	400
Pilot Point Refining Co., Pilot Point	500	300	150
Primrose Refining Co., Wichita Falls	2,500	(*)	(*)
Shamrock Oil Co., Sunray	4,000	900	600
Sinclair Refining Co., Fort Worth	5,000	3,000	2,200
Simms Oil Co., West Dallas	4,500	(*)	(*)
Southern Oil Corp., Trent	500	250	100
Southland Refining Co., Olney	1,000	170	130
Star Refining & Producing Co., Fort Worth	1,500	600	600
Superior Refining Co., Tiffin	500	30	(*)
Taylor Refining Co., Taylor	6,000	800	800
Taxman Refining Co., Wichita Falls	3,000	(*)	(*)
The Texas Co., Dallas	16,000	11,000	11,000
The Texas Co., Amarillo	4,000	1,500	2,000
Texas Pacific Coal & Oil Co., Fort Worth	5,000	2,000	2,000
Texas Pacific Coal & Oil Co., Caddo	1,000	600	500
Waggoner Refining Co., Electra	6,000	2,000	2,300
Wichita Refining Co., Wichita Falls	150	20	100
Wilcox Oil & Gas Co. (Pampa Refining Co.), Pampa	4,000	(*)	(*)
White Star Refining Co., Cisco	500	130	130
Total	230,250	80,230	76,870

*Shut down.

REFINERY OPERATIONS IN WEST TEXAS
(Plants which have been in operation during the past year)

Company and location—	Daily capacity	Aver. daily runs June	Aver. daily runs May
Active Oil Corp., Arno	1,500	(*)	(*)
Acro Refining Co., Pecos Valley	225	10	20
Bluebonnett Oil Refining Co., Wickett	5,000	(*)	(*)
Bobrose Oil & Refineries, Luling	2,500	300	300
Coltex Refining Co., Colorado	10,000	6,200	6,200
Concho Refining Co., San Angelo	500	100	90
Cosden Oil Co., Big Spring	15,000	4,100	5,000
Penteo Refining Co., Echo	400	50	50
Grayburg Oil Co., San Antonio	6,000	(*)	(*)
Great West Refining Co., Big Spring	3,500	(*)	(*)
Gulf Refining Co., Sweetwater	5,000	5,000	5,000
Howard County Refining Co.	2,500	400	500
Humble Oil & Refining Co., San Antonio	5,000	1,000	1,000
Humble Oil & Refining Co., McCamey	15,000	(*)	(*)
Magnolia Petroleum Co., Luling	7,000	2,500	3,500
McNutt Refining Co., El Paso	6,000	560	550
Marathon Oil Co., Del Rio	5,000	(*)	(*)
Mentone Oil & Refining Co., Mentone	300	100	100
Moutray Refining Co., Hawley	500	300	275
Misko Refineries, Inc., Laredo	2,500	1,500	1,250
Nolting Refining Co., Sweetwater	1,000	200	500
Octane Refining Co., Beard	2,000	760	920
Paramount Refining Co., San Angelo	2,000	700	300
Pasotex Petroleum Co., El Paso	14,000	3,000	7,000
Phoenix Refining Co., Pettus	800	400	400
Phoenix Refining Co., Laredo	600	300	300
Pioneer Oil & Refining Co., Somerset	1,500	900	1,000
Richardson Refining Co., Big Spring	6,000	(*)	(*)
Sinclair Refining Co., El Paso	2,500	600	600
Signal Gasoline Co., Texon	500	(*)	(*)
The Texas Co., San Antonio	3,000	1,500	1,500
The Texas Co., El Paso	2,000	1,400	1,000
Tonkawa Petroleum Co., Pyote	5,000	(*)	(*)
Texas Petroleum Products Co., Somerset	1,500	400	400
West Texas Refining Co., Pecos City	6,000	(*)	(*)
Wickett Petroleum Co., Wickett	2,500	1,000	500
Total	146,350	34,280	38,255

*Shut down.

REFINERY OPERATIONS IN NORTH LOUISIANA
(Plants which have been in operation during the past year)

Company and location—	Daily capacity	Aver. daily runs June	Aver. daily runs May
Bayou State Refining Co., Houston	750	(*)	(*)
Cedar Grove Refining Co., Shreveport	750	1,000	1,000
Louisiana Oil Refining Co., Shreveport, Bossier	19,000	17,350	17,250
Spartan Refining Co., Shreveport	10,000	5,000	5,000
Stanolind Oil & Gas Co., Superior	3,500	1,500	1,500
The Texas Co., Shreveport	7,000	(*)	(*)
Shreveport Refineries, Inc., Shreveport	300	300	300
Total	41,000	25,050	25,050

*Shut down.

REFINERY OPERATIONS IN ARKANSAS
(Plants which have been in operation during the past year)

Company and location—	Daily capacity	Aver. daily runs June	Aver. daily runs May
Berry Asphalt Co., Waterloo	2,000	300	300
Henry H. Cross Co., Smackover	6,000	3,500	3,000
Houston Oil Co., Camden	6,000	(*)	(*)
Lion Oil Refining Co., El Dorado	12,000	6,000	6,500
Macmillan Petroleum Products Co., Norphlet	2,000	1,700	1,700
Ouachita Valley Refining Co., El Dorado	2,000	1,200	1,200
Root Refining Co., El Dorado	10,000	4,350	2,500
Simms Oil Co., Smackover	3,000	2,500	2,500
Stephens Refining Co.	1,000	350	(*)
Total	44,000	20,400	18,200

*Shut down.

Gasoline and Lubricating Oils Advance in the East

(Continued from Page 34)

cents. Bright stock, No. 8 color, advanced 2 cents to 27½ cents per gallon, with No. 6½ color, dil., showing a corresponding advance at 26½ cents per gallon.

Export buyers of lub oils have been covering only in hand-to-mouth fashion for some months past, and the recent strong upward movement in quotations caught may with unusually short stocks on hand. As a result of this condition, covering has been active, notwithstanding the advancing prices, which is rather an unusual condition in this market, where buyers generally withdraw on an advance until the higher price levels have been thoroughly tested out by a suitable period of slack buying.

No price changes were made on red or pale engine oils during the week, but the market continued steady to firm, and the likelihood of a moderate increase in these grades persisted.

Need State Permit to Operate Gasoline Plants

(Continued from Page 29)

duplicates issued as others are built. If there is a hearing upon the application the commission reserves the right to demand a bond be given prior to issuing the permit.

Form 310. This form is intended to show the quantity of casinghead gas transported out of, into, within or across the State.

Since all natural gasoline manufacturers will be required to fill an application for the operation of their plants Senate bill No. 420 is published in full.

Senate Bill No. 420. An act requiring producers, refiners, processors and purchasers of oil or casinghead gas to prepare and file with the Oklahoma Tax Commission, within 60 days after the passage and approval of this act,* or upon demand of said commission, amended reports showing the source of such oil or casinghead gas, by wells and leaseholds; requiring producers, refiners, processors and purchasers of oil or casinghead gas to procure permits from the Oklahoma Tax Commission; providing for the disposition of taxes collected where the source of such oil or casinghead gas cannot be determined; authorizing injunctions; prescribing penalties; repealing conflicting laws; and declaring an emergecy.

Section 1. All producers, refiners, processors or purchasers of oil or casinghead gas are hereby authorized and directed to prepare and file with the Oklahoma Tax Commission, within sixty (60) days from the passage and approval of this act, or any time, upon demand of said commission, such amended producers', refiners', processors' or purchasers' reports as may be necessary to show the particular leasehold and also the particular well or wells from which oil or casinghead gas produced, refined, processed or purchased by them was produced.

*Approved May 3, 1933.

Sec. 2. All persons, firms, associations or corporations operating refineries or processing plants engaged in the business of refining or processing of crude petroleum oil or other mineral oil or casinghead gas, upon which there is paid or payable gross production tax, shall, within thirty (30) days after the passage and approval of this act, secure a permit which shall be in the form of a license from the Oklahoma Tax Commission, by making application upon forms prescribed by it, and the Oklahoma Tax Commission may, at its option and discretion, require a bond from any such person, firm, association or corporation before the issuance of such permit; any bond required herein by the Oklahoma Tax Commission shall be for the purpose of indemnifying the State of Oklahoma against loss by reason of nonpayment of gross production tax upon any crude petroleum oil or casinghead gas refined or processed in such refineries or processing plants. In all cases where such permit is not secured, the State of Oklahoma may institute, upon relation of the Oklahoma Tax Commission, suit to restrain such person, firm, association or corporation from operating such refinery or processing plant, until such permit is secured.

Sec. 3. In all cases where gross production tax is paid to the Oklahoma Tax Commission and the reports accompanying such tax are insufficient to enable said commission to determine the source, by wells or leaseholds, the oil, gas or casinghead gas upon which said gross production is paid, and where the said commission is unable to secure such information as will enable it to determine the source of such oil, gas or casinghead gas, it shall be the duty of said commission, at the expiration of six months from the date of payment of such gross production tax, to apportion and distribute the same to the general revenue fund of the State of Oklahoma.

Sec. 4. Failure on the part of any such producer, refiner, processor or purchaser of oil or casinghead gas to comply with the provisions of this act shall be deemed a misdemeanor, and upon conviction therefor, such producer, refiner, processor or purchaser of oil shall be punished by the imposition of a fine of not to exceed one thousand dollars ($1,000), or of a jail sentence of not to exceed six (6) months, or by the imposition of both such fine and imprisonment. Each day's failure to file such a report within the period of time fixed in this act shall constitute a separate offense.

Sec. 5. All acts and parts of acts in conflict herewith are hereby expressly repealed.

Sec. 6. It being immediately necessary for the preservation of the public peace, health and safety, an emergency is hereby declared to exist, by reason whereof this act shall take effect and be in full force from and after its passage and approval.

Copies of the complete booklet of regulations may be secured by writing the Oklahoma Tax Commission at the State Capitol, Oklahoma City, Okla.

Seven West Texas Completions, Two Locations; Ranger Operators Shut Down Production

By L. E. BREDBERG
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., June 5.—There were seven completions in West Texas during the week, four producers in old producing areas. Only two locations were staked, one in Howard and one in Ward County.

L. C. Harrison's No. 1 Rhotan, in Section 4, Block 30, Township 1s, T.&P. Survey, eastern Howard County, now looks like a mile northwest extension to the Dodge-Denman Pool which has been producing for about two years. It encountered its first showing at 2,525 feet, a little high for this area. Another show was struck at 2,660-80 feet, where it started making 3 bbls. per hour. It is now shut down to set casing and test before going any deeper. Col-Tex Refining Co. of Colorado City is taking the oil from this pool, which lies west of the old Westbrook Pool of Mitchell County, and northwest of the main producing area of Howard County.

Ector County

Landreth Production Co. and Texas Co.'s No. 1 Holt, in Section 16, Block 43, Township 1n, T.&P. Survey, northern Ector County, encountered sulphur water believed to be coming from the lime pay logged from 4,450-60 feet, the total depth. At 4,450 feet it was estimated good for from 10 to 15 bbls. of oil and water per day. It is now plugging back 25 feet to shut off the water. If this does not result in a shut-off it will be plugged back still further and given a shot.

Waggoner Western's No. 1 Addis, in Section 35, Block 43, Township 2s, in the Addis area, Ector County, will be the next interesting test. It is drilling at 3,310 feet, having about another 1,000 feet to go before it will log the pay. There are now two producers in this area, both small. One is the discovery well of Harrison, Turner and others, and the second Stanolind Oil & Gas Co.'s No. 1 Cowden, a north offset, making only about 100 bbls. per day.

Cherry and others' No. 1 Johnson, in Section 41, Block 43, Township 1s, Ector County, is another interesting test, about midway between the Addis area on the south and the Cowden area on the north, and approximately 1 mile to the southeast of a dry hole which went to 3,605 feet, not deep enough for production found in either of the two areas. If the Johnson test proves a producer it will stimulate drilling on other acreage intervening, and will indicate they may connect, although there is plenty of room left for dry holes to disprove this theory.

Pipe Line Runs

Pipe line runs from West Texas, for April show a total of 4,950,780 bbls., a decline from March which registered 5,065,744 bbls. A difference of 114,964 bbls. is shown. There is a larger decline in pipe line movement expected to be shown for May.

There were 20,352,257 bbls. in storage in the district as of May 1, with 31,497,825 bbls. of room. Much tankage has been cut down in West Texas and moved to East Texas.

WICHITA FALLS DISTRICT

Jack Grace and others' No. 1 W. L. Andrews, one-half mile from the nearest production in southeast Archer County, promises opening of a new pool from saturated lime cored from 867-76 feet, total depth. Five hundred gallons of acid was set with an 18-bbl. oil load. It stood for 36 hours and has been making from 75 to 100 bbls. per day. Production is coming from the regular Gunsight lime. A dry hole intervenes between this new producer and the nearest production. The well is in the I. W. Gholson Survey.

Production in the Ranger district is shut down almost 90 per cent. The operators cannot produce oil at the prevailing price in the district, in which the majority of the wells are pumpers, consequently elect to shut in their wells.

Cross Plains Gas Line

The city of Cross Plains is planning to install its own gas distribution system, a system which will necessitate the laying of approximately 50,000 feet of line, which will be 2, 3 and 4-inch. Gas can be obtained from near-by wells. Southwestern Gas Co. is now serving the city and charging 75 cents per 1,000 feet for gas.

There were 19 locations staked this week in the Ranger and Wichita Falls districts.

Pipe line runs in the Wichita Falls district averaged 48,400 bbls. during the week, a drop of about 25 bbls. per day under the previous week's average.

PANHANDLE DISTRICT

There were no locations staked in the Panhandle this week. Seven wells were completed, three of which were old wells drilled deeper.

North American Oil & Gas Co. has been purchasing acreage along the Gray-Carson County line, paying $5 and $6.50 per acre, with 50-cent rentals, 10-year leases. Consolidated Gas Co. has also been purchasing acreage in this district, centering its activities in southern Wheeler County. The company has a line to Enid, Okla., and Wichita, Kans., constructed in 1928.

The Panhandle district has been granted an increase of 1,000 bbls. per day in allowable, raising the daily limit to 44,000 bbls., effective June 1.

Howard County

Mid-Continent Oil & Gas Co.'s No. 2 Denman, top pay 2,700-15 feet, shot 280 quarts from 2,703-2,805 feet, initial production 283 bbls. first 24 hours, total depth 2,809 feet. Sinclair Prairie Oil Co.'s No. 5 Dodge, top pay 2,665-75 feet, increase at 2,690-2,700 feet, shot 300 quarts, initial production 100 bbls. per day pumping, total depth 2,815 feet.

Scurry County

Guthrie's No. 1 Clarkson, dry and abandoned, total depth 3,500 feet.

Reagan County

Wahlenmaier Petroleum Co.'s No. 1 Hughes, dry and abandoned, total depth 3,021 feet.

Ward County

Barnsdall Oil Co.'s No. 5 Henry, total depth 2,712 feet, plugged back to 2,370 feet, initial production 28 bbls. Sturm and others' No. 3 Jones, top pay 2,587-93 feet, initial production 320 bbls. per day flowing, total depth 2,596 feet.

Winkler County

Richardson and others' No. 1 State, top pay 2,920-33 feet, increase at 2,998-3,002 feet, initial production 225 bbls. per day flowing, total depth 3,010 feet.

COMPLETIONS IN PANHANDLE

Gray County

Gordon Burch and others' No. 1 Langham, top pay 2,085-2,270 feet, total depth 2,795 feet, plugged back to 2,450 feet, initial production 14,000,000 feet of gas. North American Oil & Gas Co.'s No. 1 Sullivan (old well drilled deeper), old total depth 2,640 feet, new total depth 2,655 feet, initial production 9,000,000 feet of gas. Phillips Petroleum Co.'s No. 2 Palmer (old well drilled deeper), old total depth 2,963 feet, initial production 623 bbls. oil daily flowing on gas lift, total depth 3,035 feet. Skelly Oil Co.'s No. 1 Thut, top pay 2,695-2,700 feet, initial production 6 bbls. oil and 20 bbls. of water, total depth 2,992 feet. Texas Co.'s No. 2 Faulkner (old well drilled deeper), old total depth 2,935 feet, new total depth 3,032 feet, initial production 271 bbls. oil on fourth day of pumping test. Wilcox Oil & Gas Co.'s No. 22 Combs-Worley, gas pay 2,960-3,020 feet, initial production 2,911 bbls. flowing on three-day Railroad Commission test, total depth 3,030 feet.

Hutchinson County

Stanolind Oil & Gas Co.'s No. 4 Moore and Langdon, top pay 3,049-85 feet, increase at 3,070-3,125 feet, shot 250 quarts 3,046-3,125 feet, initial production 172 bbls. oil daily, total depth 3,125 feet.

COMPLETIONS IN NORTH CENTRAL TEXAS

Archer County

Rathke Oil Co.'s No. 1 Gulf, dry and abandoned, total depth 1,119 feet. Seaberry's No. 1 Hughes, oil sand 594-97 feet, initial production 3 bbls., total depth 597 feet. Gross & Reed's No. 1 Andrews, dry and abandoned, total depth 1,291 feet. W. B. Hamilton's No. 1 Graham, dry and abandoned, total depth 3,342 feet. Kerbow and others' No. 1 Stell, dry and abandoned, total depth 1,191 feet. W. B. Omohundro's No. 5 Turbeville, oil sand 1,476-79 feet, initial production 140 bbls., total depth 1,479 feet.

Brown County

Barnhart and others' No. 3 Henslee, initial production 1 bbl.; A. E. Mets' No. 1 A. I. Teague, temporarily abandoned, total depth 605 feet.

Callahan County

Anderson & Bailey's No. 1 W. K. Boatwright, dry and abandoned, total depth 759 feet.

Clay County

A. C. Smith's No. 2 Schumake, dry and abandoned, total depth 1,400 feet. Texas Co.'s No. 1 J. B. Hansard, oil sand 1,140-48 feet, initial production 24 bbls., total depth 1,716 feet.

Coleman County

Ard Herb and others' No. 1 C. R. Bivens, dry and abandoned, total depth 1,780 feet.

Jack County

Brazos River Gas Co.'s No. 5 Clayton, oil sand 2,925-35 feet, initial production 20 bbls., total depth 2,952 feet. R. P. Dorian's No. 1 Maxey, dry and abandoned, total depth 575 feet; No. 1 Moore, dry and abandoned, total depth 560 feet. J. E. Dunaway's No. 1 Cooper, dry and abandoned, total depth 708 feet. A. C. Parks' No. 1 Miller, dry and abandoned, total depth 701 feet.

Palo Pinto County

State Oil Corp.'s No. 2 Allen-Ritchie, gas well, initial production 10,500,000 feet. MacDermott's No. 1 R. D. Maxwell, dry and abandoned, total depth 1,650 feet.

Shackelford County

Roeser & Pendleton's No. 5 Dawson, dry and abandoned, total depth 1,957 feet.

Taylor County

Sanger and others' No. 1 City of Abilene, dry and abandoned, total depth 2,317 feet.

Throckmorton County

J. A. Bearman's No. 7 Tuton, dry and abandoned, total depth 716 feet.

Wichita County

J. H. Catlin's No. 2 Chilson, dry and abandoned, total depth 1,180 feet. C. W. Clark's No. 3 Allen Kemp, abandoned location. Kimbell and Bostic's No. 3 Hines, dry and abandoned, total depth 924 feet. Morris & Dunn's No. 9 Sheldon, dry and abandoned, total depth 840 feet. Ross and others' No. 21 Mitchell, dry and abandoned, total depth 1,393 feet.

Wilbarger County

Sheldon & Martin's No. 1 Wheeler, oil sand 1,340-46 feet, initial production 15 bbls., total depth 1,346 feet.

Young County

Rhea Anderson's No. 1 Kunkel, dry and abandoned, total depth 1,202 feet. W. L. Denenger's No. 1 Stewart, oil sand 509-17 feet, initial production 11 bbls., total depth 517 feet. Helena Oil & Gas Co.'s No. 1 Grigsby, dry and abandoned, total depth 703 feet. Panhandle Refining Co.'s No. 1 Morris, dry and abandoned, total depth 649 feet. Petroleum Production Co.'s No. 1 Jeffery, dry and abandoned, total depth 914 feet. Frank Swift's No. 1 Hill, show oil 1,020-21 feet, initial production 4 bbls., total depth 1,021 feet. Wooten Reed and others' No. 6 Hinson, dry and abandoned, total depth 851 feet.

Wildcat Operations in West Texas

Week Ending June 5

BREWSTER COUNTY

Company, well, farm name, section and block— Remarks:
Joiner's No. 1 McIntire, 853 ft. from S and 2,390 ft. from E, Sec. 31, Blk. 352, W. J. Mitchell Sur. ..... Underreaming csg. 890 ft.

CONCHO COUNTY

Beasley et al's No. 1 Waring Estate, 400 ft. from N and E, Sec. 143, T.&N.O. Sur. ..... T.D. 2,686 ft.; pumping 6 bbls. oil per day and some water.

CRANE COUNTY

Loffland Bros.' No. 1 Tubbs, 1,334 ft. from N line and 1,320 ft. from W line of Sec. 9, Blk. B-37, P.S.L. Sur... Rigging up standard tools.

CULBERSON COUNTY

Miller Bros.' No. 1 fee, 1,980 ft. from N line and 660 ft. from E line of Sec. 61, Blk. 97, P.S.L. Sur. ..... Drlg. 840 ft.

ECTOR COUNTY

Cherry et al's No. 1 Johnson, 1,320 ft. from S line and 660 ft. from E line of Sec. 41, Blk. 43, Twp. 1s, T.&P. Sur. ..... Drlg. 3,175 ft.
L. C. Harrison et al's No. 1 Addis, 330 ft. from N and 1,320 ft. from W. Sec. 35, Blk. 43, Twp. 2s, T.&P. Sur.. Flowing average of 275 bbls. oil per day to tanks; T.D. 4,961 ft.

(Continued on Page 46)

Commission May Reduce East Texas Allowable to 450,000 or 500,000 Barrels Per Day

By L. E. BREDBERG

DALLAS, Tex., June 5.—The Railroad Commission was busy during the week taking potential tests on 155 key wells in order that it might have more data for use during the hearing at Austin on June 12. Pressure tests are also being made but no figures have been given out on the bottom hole situation.

Some 138 of the 155 wells tested on a two-hour flow, showed that potentials had fallen an average of 11 per cent since the field was last tested and before it was opened on April 24 after a two weeks' shut down. Some of the wells showed a gain in the two-hour open flow test this week, but the majority showed a loss, some losses being as low as 1.18 per cent. The highest decrease in potential flow was on Shell Petroleum Corp.'s No. 1 Elder in the Kilgore area. This well fell 84.87 per cent. The highest increase in flow was 26.80 per cent. This week the wells were tested while all other wells in the field were producing, and after approximately 35,000,000 bbls. of oil had been removed since the last test.

The following differences were registered by some of the wells: Markham-Dunning's No. 2 Peterson in the Winn Survey, Rusk County, on the former test made 850 bbls. in the two hours; this week it made 721 bbls. Sinclair Prairie Oil & Gas Co.'s No. 1 Williams, Wilburn Survey, Gregg County, fell from 738 bbls. to 588 bbls.; Gulf Production Co.'s No. 3 Judge, Johnson Survey, Gregg County, 905 bbls. to 722 bbls.; Tide Water Oil Co.'s No. 6 Sheppard, Allen Survey, Gregg County, 486 bbls. to 477 bbls.; Sinclair Prairie Oil Co.'s No. 4-A King, Warraner Survey, Gregg County, 630 bbls. to 690 bbls.; Humble Oil & Refining Co.'s No. 2 Crim, Sevier Survey, Rusk County, 653 bbls. to 563 bbls.; Sinclair Prairie Oil Co.'s No. 9 Cole, Brooks Survey, Gregg County, 423 bbls. to 528 bbls.; Empire Gas & Fuel Co.'s No. 2 Spurrie, Castleberry Survey, Gregg County, 483 bbls. to 471 bbls.; Houston Oil Co.'s No. 1 Clements, Rhoads Survey, Gregg County, 487 bbls. to 533 bbls., and Superior Oil Co.'s No. 1 Ingram, Pasteur Survey, Gregg County, 1,013 bbls. to 884 bbls.

Heavier Decreases

The new tests tend to show that decreases, especially the heavier decreases in potentials, were found in the areas which have encountered the greatest amount of drilling. The average well density of the field is one well to approximately 11 acres, but in many cases the density is much greater. The heavy flowing of the wells during the past few weeks may have also resulted in cleaning paraffin from the well, and conditioned the sand areas at the bottom and around many of the wells, thereby causing the flow to increase, and consequently show an increase on the new potential tests.

However, having an average decline of 11 per cent of the potentials, in about five weeks, flowing at the rate of around 1,000,000 bbls. per day, conditions may be taken into consideration by the commission, and that body may elect to cut the allowable to between 450,000 and 500,000 bbls. The allowable now is over 836,000 bbls. per day.

Bottom hole pressure tests may show a greater percentage in decline than potentials did, and may be given more consideration by the commission, although the sum of both tests will no doubt be used in setting a new allowable after the June 12 hearing. Many operators who were for a higher allowable before the price was cut to 25 cents are now reported in favor of a slash in the allowable.

Shipments

Purchasers continue to run as much oil as they can through their trunk lines, even going so far as to use tank cars to augment the shipments. During the week ending May 29 an average of 731,100 bbls. per day was transported by the major purchasers, peak in pipe line shipments during the past five weeks of high production. Tank car shipments were down to around 75,000 bbls. per day during the week. Runs to refineries were 71,325 bbls. per day. There is nearly 3,000,000 bbls. of steel storage building and proposed for the district, much of it being erected by the smaller companies.

Storage Program

In the May 25 issue of The Oil and Gas Journal there was a list of the number of tanks just completed, building or proposed. Since that time Texas Co. has started grading and construction for eight 80,000-bbl. tanks at its Gilstrap tank farm in the Bennett Smith Survey, north of Turnertown in Rusk County. Four of these tanks are being cut down and moved from Winkler County, and the other four from Crane County.

Gulf Pipe Line Co. has laid 5,800 feet of 4-inch line from its Judge lease to its main line.

Apex Pipe Line Co. is laying a 6-inch line from London to the refinery of Oil Refineries, Inc., at Overton, which has just completed erecting one 55,000-bbl. tank at its plant.

Humble Pipe Line Co. is building one 17,000-bbl. tank at its Bateman station near Kilgore, and one 10,000-bbl. tank at Gladewater station.

Cherokee Chief Oil Co. is constructing one 55,000-bbl. tank and grading for another on its Johnson lease in the Gladewater townsite, western Gregg County.

In checking over steel storage that has been cut down in West Texas, presumably to move to East Texas, it was found that 1,170,000 bbls. was removed from the Midland tank farm of the various companies. Two hundred thousand barrels of tankage has been moved from Howard County and another 100,000 bbls. has been cut down in Crane County, with 320,000 bbls. more to be cut down. There has also been 557,600 bbls. cut down and moved from Ward and Winkler Counties. These moves were all made by the major pipe line companies which had tank farms in those areas, and which have erected a considerable amount of storage in East Texas.

Paying Premiums

All purchasing companies are buying to the extent that oil in the field is now bringing a premium, reported from 5 to 12 cents per barrel above the "two-bit" posted price. This may be taken as an indication that purchasers believe the allowable will soon be cut by the commission, and the price raised to around 50 cents or more per barrel.

Buying Pumping Equipment

Companies continue to purchase pumping equipment, a good indication that they expect the field to decline in bottom hole pressure to the pumping point in the near future. Humble Oil & Refining Co., the largest producer in the field, has applied to the railroad commission for a permit to use gas lift in flowing 21 wells in the Kilgore area, the gas to come from the company's casinghead gasoline plant south of Kilgore. The use of air or gas lift is not permitted in the field at present but the commission may grant permission to this company to use the residue gas, which would be a conservation measure, and may also permit other dead wells in the field to be kicked off by residue gas piped from the eight gasoline plants scattered throughout the field. Humble Oil & Refining Co., Gulf Production Co. and Eureka Gasoline Co., are all near Overton, London and Turnertown. One plant is near Arp, and another is near the south end of the field, all in splendid location to supply residue gas to surrounding leases if permission is granted. There are several plants, well located in the north end of the field, especially one at Kilgore and one in Gladewater, both being in low pressure areas, or in areas which on account of being heavily drilled will fall to the pumping point before other parts of the field. However, with a smaller daily allowable, each of the 10,075 wells in the field will not produce much gas with the oil, and the residue gas will be sufficient to pump only a small part of the total number.

Tighter Enforcement

The commission men in the field continue to clamp down on violations, and more injunctions and receiverships were filed during the past week. The greater part of the oil now going out above the produced allowable, is what is termed "back allowable" which the commission allows the companies to run.

Federal Judge Randolph Bryant of Tyler granted the commission a temporary injunction on June 1, at Texarkana, restraining Saco Oil Corp. and others from violating the commission's orders, pending a decision by a three-judge Federal Court in another case. The commission formerly obtained a receivership against the company, but Neal Powers, assistant attorney general, agreed to seek dissolution of this receivership if the company and its coplaintiffs would make themselves subject to a Federal Court injunction.

The governor has not yet signed the revised bill making violation of proration orders a felony, and has 20 days to act. The bill then will not be in force for 90 days more.

Wildcatting

Prather Cadillac Co. of Dallas has taken over W. C. Hamilton's No. 1 Jones in the J. D. Hamilton Survey, Cherokee County, and will drill to the Woodbine sand. The test is now shut down at 3,639 feet.

Sun Oil Co. has been making a checkerboard play approximately 7 miles southeast of Palestine in Anderson County, taking 10-year leases.

Bob Peveto and Fred Prince will drill a Woodbine sand test on acreage acquired from the Gulf Production Co. in Franklin County. It is in the W. Birdwell Survey. Humble Oil & Refining Co. holds surrounding acreage and has been asked for dry hole money. A derrick is being built on the 117-acre tract on which location was formerly staked.

E. L. Smith Oil Co. will core drill a 6,000-acre block between Teague and

East Central Texas Wildcats

Week Ending June 5

Company, well, farm name, section and block—	Remarks
ANGELINA COUNTY	
LaRue-Smith et al's No. 1 J. Perkins, center of W 22 acres of J. Perkins 55-ac. tract, Antonio Flores Sur.	Rig up.
CHEROKEE COUNTY	
Wilson & Stubbs' No. 1 L. Robert, 450 ft. from S and 150 ft. from W line of lease, J. B. Wolfin Sur.	**Prepare to deepen. T D 1,600 ft**
FRANKLIN COUNTY	
Fred Prince et al's No. 1 E. L. Phillips, 1,110 ft. from W line and 330 ft. from N line of survey, W. Birdwell Sur.	Derrick.
FREESTONE COUNTY	
Clyde Creighton's No. 1 Holley Bros., 554 ft. from W line and center of N and S lines of lease, A.B.M. Sur.	Drlg. 4,595 ft.
GREGG COUNTY	
P. R. Bond's No. 1 T. Anderson, 442 ft. S and 30 ft. W of Sinclair Prairie's No. 3 Williams, J. Ruddle Sur.	Rig up.
Cranfill & Reynolds' No. 4 Scott, 1,750 ft. from N line and 330 ft. from E line of survey, D. Dainwood Sur.	Drlg. 3,200 ft.
Gulf Production Co.'s No. 6 G. Davis, 740 ft. from S line and 330 ft. from E line of lease, W. P. Chisum Sur.	Drlg. 3,290 ft.
Gulf Production Co.'s No. 7 F. M. Fonville, 1,800 ft. from N line and 2,450 ft. from W line of survey, William Tyndale Sur.	Rig up.
A. D. King, trustee's No. 2 D. T. Lloyd, 353 ft. S and 14 ft. W of NW cor. of Stanolind's Meadow lease, D. Sanches Sur.	Rig up.
Rainey et al's No. 1 State, 5,220 ft. from N line and 1,100 ft. from W line of P. McAnally Sur.	Set surface csg.
Reed et al's No. 2 State Land, center of Tract No. 6, P. McAnally Sur.	Drlg. 3,025 ft.
Simms Oil Co.'s No. 2 B. Wood, 3,770 ft. from N line and 188 ft. from W line of survey, J. Skillern Sur.	Drlg. 2,960 ft.
Stanolind Oil & Gas Co.'s No. 5 Meadows, 91 ft. from N line and 68 ft. from W line of lease, D. Sanches Sur.	Drlg. 3,060 ft.
Superior Oil Co.'s No. 16 Ingram, 1,800 ft. from N line and 1,430 ft. from W line of survey, W. E. Pasteur Sur.	Drlg. 1,825 ft.
Tide Water Oil Co.'s No. 10 Hughey, 914 ft. from N line and 330 ft. from E line of survey, J. Hillard Sur.	Rig up.
Yeager et al's No. 1 Howard, 660 ft. E of Harry Lewis' No. 1 King, Mary Scott Sur.	Rig up.
Yount Lee Oil Co.'s No. 7 V. Calvin, 330 ft. from E line of lease and 525 ft. from Nos. 1 and 3, H. Hathaway Sur.	Set surface csg.
Yount Lee Oil Co.'s No. 4 M. M. Custer, 330 ft. from N line of lease and 660 ft. E of No. 1, J. Skillern Sur.	Rig up.

(Continued on Next Page)

Freestone in Freestone County, and has a six months' option on the block, planning to drill a Woodbine sand test if the core drilling registers favorably. The block centers in the Luna & Davis Surveys.

W. H. Roeser and associates have assembled approximately 7,000 acres in the southwest portion of Henderson County, adjoining the Trinity River and lying in the Chappell, Vonder Vieva and adjacent Surveys.

Wiggins, Champlin & Bass have derrick up for No. 1 Wiggins in the Nacogdoches University Survey, 2 miles southwest of Riley Springs, on a block of approximately 6,000 acres. It will be a Woodbine test.

A 3,000-acre block has been contracted for 3 miles southwest of Oakland in and around the E. Smith Survey, Hunt County, and a Woodbine test will be drilled on what is considered a fault line play.

A block of 6,000 acres has been signed up around Ed Bateman Drilling Co.'s No. 1 A. C. Carlyle farm in the May Elm Survey, approximately 2½ miles northeast of Jewett in Leon County, which is to be drilled to 6,500 feet.

John Berry is taking approximately 4,000 acres centering in the J. Edmunson Survey, southwest of Avery in Red River County.

Sun Oil Co. is to drill a Woodbine sand test on its block of approximately 5,000 acres centering in the southeast corner of the M. J. Henriquez Survey, Smith County. If the test fails, the company plans to use it for a salt water disposal well, running salt water from its west edge wells in the East Texas Field and pumping into this well.

Wadley & Lyons and others are building a derrick for No. 3 Shuttlesworth in the S. M. Dunn Survey, 1½ miles north of Jamestown in Upshur County. These associates have completed a small well in this area.

Peden and others have completed two shallow wells in the Nacatoch sand area north of the Van Field, Van Zandt County, and have contracted to drill four more on the Brennon tracts in the Nacogdoches County School Lands Survey.

There were 17 wells completed in East Texas this week and two wildcats were abandoned, one in Van Zandt County and one in Hunt County. There were 18 locations staked.

COMPLETIONS IN EAST TEXAS

South Gregg County

Culver and Knox' No. 1 J. Elder, top sand 3,655 feet, initial production 125 bbls. per hour through open tubing, total depth 3,665 feet. J. S. King's No. 1 fee, top sand 3,551 feet, initial production 78 bbls. per hour through three-quarters inch tubing choke, total depth 3,579 feet. Shell Petroleum Corp.'s No. 6 D. M. Bates, top sand 3,541 feet, initial production 38 bbls. per hour through tapered tubing, total depth 3,521 feet.

North Gregg County

Atlantic and Stanolind Oil & Gas companies' No. 8 Fishburn, top sand 3,491 feet, initial production 83 bbls. per hour through open tubing, total depth 3,526 feet. Jim Bond's No. 2 C. Fisher, top sand 3,472 feet, initial production 85 bbls. per hour through open tubing, total depth 3,492 feet. Gulf Production Co.'s No. 6 Fonville, top sand 3,521 feet, initial production 100 bbls. per hour through open tubing, total depth 3,560 feet. Humble Oil & Refining Co.'s No. 11 J. F. Boles, top sand 3,597 feet, initial production 55 bbls. per hour through three-quarters inch tubing choke, total depth 3,625 feet. Magnolia Petroleum Co.'s No. 7 G. W. Ritchie, top sand 3,572 feet, initial production 109 bbls. per hour through 1-inch tubing choke, total depth 3,592 feet. Ray Drilling Co.'s No. 1 A. H. Tubbs, top sand 3,576 feet, initial production 4 bbls. pumping, total depth 3,622 feet; No. 2 Tubbs, top sand 3,561 feet, initial production 4 bbls. per hour, total depth 3,585 feet. Reed and others' No. 1 State, top sand 3,464 feet, initial production 90 bbls. per hour through open tubing, total depth 3,485 feet. Sun Oil Co.'s No. 4-A Allen Tooke, top sand 3,567 feet, initial production 85 bbls. per hour through open tubing, total depth 3,648 feet. Superior Oil Co.'s No. 14 Ingram, top sand 3,485 feet, initial production 40 bbls. in one-quarter hour through open tubing, total depth 3,558 feet. M. E. Trapp's No. 1 R. B. White, top sand 3,495 feet, initial production 100 bbls. per hour through open tubing, total depth 3,535 feet.

North Rusk County

Humble Oil & Refining Co.'s No. 10 P. R. DeGuerin, top sand 3,702 feet, initial production 60 bbls. in 50 minutes through three-quarters inch tubing choke, total depth 3,743 feet. Snowden and McSweeney's No. 9 R. Laird, top sand 3,577 feet, initial production 80 bbls. in one-half hour through open tubing, total depth 3,592 feet. Sun Oil Co.'s No. 1 W. D. Tucker, top sand 3,698 feet, initial production 24 bbls. in 3½ hours through one-quarter inch tubing choke, total depth 3,700 feet.

WILDCAT COMPLETIONS

Hunt County

Solar Exploration Co.'s No. 1 Smith, dry and abandoned, total depth 1,537 feet, elevation 601 feet, William Glass Survey.

Van Zandt County

Gulf Oil Co.'s No. 1 Stone, dry and abandoned, total depth 1,500 feet, H. Meyers Survey.

Van Pool—Van Zandt County

Pure Oil Co.'s No. 6 J. A. Bracken, initial production 164 bbls. first 24 hours' gauge after choked for proration, total depth 2,936 feet; No. 5 B. W. Russell, initial production 36 bbls. first 24 hours after choked for proration, total depth 2,998 feet.

ROCKY MOUNTAIN AREA

Estimated daily production for week ending June 3, follows:

	Bbls.
WYOMING	
Salt Creek	18,880
Big Muddy	1,850
Badger Basin	40
Byron-Garland	200
Dallas Derby	230
Dutton Creek	80
Elk Basin	520
Ferris	20
Frannie	280
Grass Creek	440
Hamilton Dome	790
Hudson	340
LaBarge	550
Lance Creek	190
Lost Soldier	2,030
Midway	30
Oregon Basin	110
Osage	700
Pilot Butte	30
Rex Lake	30
Rock River	620
Poison Spider	210
Teapot	20
Total	28,240
MONTANA	
Buckley-Border	350
Cat Creek	770
Cut Bank	450
Dry Creek	230
Kevin-Sunburst	3,150
Lake Basin	60
Pondera	950
Total	5,960
COLORADO	
Florence	250
Fort Collins and Wellington	630
Iles Dome	590
Moffat	640
Orchard	150
Rangely	70
Tow Creek	240
Artesia	550
Total	3,120
NEW MEXICO	
Cooper area	80
Eunice area	600
Hobbs	28,810
Hogback	220
Jal	1,260
Lea area	2,340
Jackson	700
Maljamar	300
Rattlesnake	730
Table Mesa	80
Total	31,020
Total all fields	72,340
Previous week	71,450
Difference	890

Thomas F. Lydon, Shell Executive, Passes Away

Thomas F. Lydon, executive vice president and treasurer of the Shell Petroleum Corp., died Sunday morning, June 4, at his home in St. Louis, Mo. He was 57 years of age.

Mr. Lydon was born in Ireland and came to this country with his parents when a small boy. He entered the employ of the Waters Pierce Oil Corp. in 1902 and received rapid promotion in recognition of his ability. In 1916 he joined the Roxana Petroleum Corp., a Royal Dutch-Shell subsidiary, and his merits were recognized by that company and its successor, the Shell Petroleum Corp.

Mr. Lydon married Alice Stanley, who survives, together with one son, Thomas H. Lydon, and several brothers and sisters.

The funeral was held Tuesday in St. Louis.

REVIVAL IN BOLIVAR AREA

BOLIVAR, N. Y., June 3.—With three wells drilling and the fourth soon to be started, the Penn Petroleum Co. has plans for drilling 31 wells in the Bolivar Field well under way. This marks the first intensive drilling development since proration was lifted for the month of June.

The Penn company owns more than 2,200 acres in the Bolivar Field as well as tracts in the Bradford Field. The drilling is an indication of the belief of officers of the company that the oil-producing industry will show gradual improvement from this time on.

East Central Texas Wildcats

(Continued from Preceding Page)

HILL COUNTY

Spikes et al's No. 1 Holman, 150 ft. from NW cor. of 100-ac. tract, one-half mile S of Mt. Calm, Latham Sur. ..... Rig up.

HOPKINS COUNTY

E. F. Corley's No. 1 Jumper ..... Moving in rig; T.D. 1,630 ft

Culberson & Lynch's No. 1 Louis Stribling, 150 ft. from NW cor. of tract and lease, Thomas Norris Sur. .. Rig up.

Delworth-Hogan and Ashby's No. 1 Logan, 250 ft. from S and E lines of 175-ac. tract, A. L. Wetman Sur. .. Rig up.

Pete Wiggins et al's No. 1 fee, 400 ft. from S line and 567 ft. from W line of 48-ac. tract, Nacogdoches University Lands Sur. ..... Rig up.

HUNT COUNTY

Solar Exploration Co.'s No. 1 Smith, 310 ft. from E line and 370 ft. from S line of lease, William Glass Sur. ..... T.D. 1,500 ft.

KAUFMAN COUNTY

Gray-Bentley-Brewer et al's No. 1 J. B. Hunter, 300 ft. from S line and 150 ft. from SE line of 500-ac. tract, 4 miles S of Terrell, R. Sowell Sur. ..... Drlg. 1,615 ft.

LEON COUNTY

Bateman et al's No. 1 A. C. Carlyle, 150 ft. out of NE cor. of survey, Mary Elem Sur. ..... Rig up.

LIMESTONE COUNTY

C. C. Curtis et al's No. 1 Emma Daniels, 150 ft. from W line and 150 ft. from S line of 42.5-ac. tract in Pedro Varela Sur. ..... Set surface csg. 60 ft.

MORRIS COUNTY

Doctor Beeler et al's No. 1 B. C. McCullum, 150 ft. from W line and midway between N and S lines of 27-ac. tract, S. A. Loving Sur. ..... Spudded and S.D.

RED RIVER COUNTY

Ajo Oil Co.'s No. 1 Nickels & Daniels, center of S 730 acres of 1,808-ac. tract, 8 miles N of English, Hugh B. Shaw Sur. ..... Rigging up.

RUSK COUNTY

Ajo Oil Co.'s No. 3 Sanders, 1,280 ft. from N line and 6,720 ft. from W line of survey, T. J. Martin Sur. .. Drlg. 1,170 ft.

C. & P. Oil Co.'s No. 1 A. Thrash, 5,500 ft. from S line and 1,740 ft. from E line of survey, M. J. Pru Sur. .. T.D. 3,565 ft.

Combined Oil Co.'s No. 14 G. W. Eaton, 330 ft. from S line and midway between Nos. 6 and 9, F. Cordova Sur. ..... Derrick.

Cordova Union Oil Co.'s No. 1-D C. O. Christian, 1,490 ft. from N line and 1,880 ft. from W line of survey, D. Clark Sur. ..... Derrick.

Griffin & Barnes' No. 1 fee, 12 ft. from S and W lines of 2-ac. tract, J. B. De Cadena Sur. ..... Waiting on cmt. to set.

Gulf Production Co.'s No. 7 C. H. Grissom, 4,760 ft. from S line and 4,800 ft. from W line of survey, F. Cordova Sur. ..... Derrick.

Jordan & Ramsey's No. 1 L. W. Prior, 330 ft. from N line and 607 ft. from E line of 53-ac. lease, Walker Pettit Sur. ..... Waiting for surface csg.

Lion Oil & Refining Co.'s No. 10-B H. Brooks, 5,520 ft. from S line and 1,420 ft. from E line of survey, M. J. Pru Sur. ..... Derrick.

Earl and Martin's No. 2 Pinkston, 2,100 ft. from S line and 4,900 ft. from W line of survey, M. J. Pru Sur. .... Fishing for tubing; T.D. 3,672 ft.

Mid-Kansas Oil & Gas Co.'s No. 4 C. L. Graham, 180 ft. from N line and 1,104 ft. from W line of lease, Peter Tipps Sur. ..... T.D. 3,676 ft.

Mid-Kansas Oil & Gas Co.'s No. 1 Robert Van Zandt, 1,132 ft. S and 358 ft. E of SW cor. of Stanolind-Pure, Ras Lacy 100-ac. tract, J. H. Sparks Sur. .... Derrick.

Mid-Kansas Oil & Gas Co.'s No. 13 S. H. Moores, 3,800 ft. from E line and 790 ft. from S line of survey, M. J. Pru Sur. ..... Derrick.

Mid-Kansas Oil & Gas Co.'s No. 14 E. E. Moores, 140 ft. from S line and 3,260 ft. from E line of survey, M. J. Pru Sur. ..... Derrick.

Walker Murray et al's No. 1 W. H. Arnold, 330 ft. from S and W lines of 50-ac. tract, Levi N. Sparks Sur. ..... T.D. 3,735 ft.

Patterson Drlg. Co.'s No. 3 Brock Estate, 2,320 ft. from N line and 100 ft. from E line of survey, R. W. Smith Sur. ..... Derrick.

W. S. Randall's No. 2 Buntyn, 136 ft. W and 102 ft. N of NW cor. of Shell's Rosa Russell lease, J. C. Snow Sur. ..... Set surface csg.

Roberts Bros.' No. 2 W. J. Brightwell, 2,430 ft. from N line and 400 ft. from W line of survey, R. E. Winn Sur. ..... Drlg. 2,425 ft.

J. I. Roberts' No. 2 Brightwell, 280 ft. from N line of survey and 150 ft. from W line, R. E. Winn Sur... Waiting on cmt. to set; T.D. 3,675 ft.

Jess Seward's No. 1 Burton J. J. D'Barbo Sur. ..... T.D. 3,887 ft.

Snowden and McSweeney's No. 10 R. Laird, 320 ft. from N line and 1,400 ft. from W line of survey, W. P. Chisum Sur. ..... Derrick.

Tide Water Oil Co.'s No. 5 F. L. Buntyn, 50 ft. from W line and 1,110 ft. from N line of survey, T. C. Snow Sur. ..... Waiting on cmt. to set.

Turman Oil Co.'s No. 7 R. Dark, 330 ft. from S and W lines of lease, M. J. Pru Sur. ..... Swabbing; T.D. 3,730 ft.

Weaver-Crim Oil Co.'s No. 3-B F. Bean, 700 ft. from S line and 1,500 ft. from W line of survey, Mary Cogswell Sur. ..... Swabbing; T.D. 3,645 ft.

SMITH COUNTY

Kimble and Smith's No. 1 N. Green, 158 ft. from S line and 1,450 ft. from W line of survey, M. Hussner Sur. ..... Waiting on cmt. to set; T.D. 3,823 ft.

Long Drilling Co.'s No. 2 G. A. Turner, D. W. Campbell Sur. ..... Derrick.
Mundit et al's No. 1 O. G. Funderburg, 330 ft. from NW cor. of 62-ac. tract, Victory Loupy Sur. ..... Drlg. 4,160 ft.
Texarana Oil Co.'s No. 2 S. S. Cook, 3,980 ft. from N line and 7,580 ft. from E line of survey, J. Vargus Sur. ..... Derrick.

TITUS COUNTY

Garland Hallett et al's No. 1 W. W. Jackson, 330 ft. from S and E lines of 20-ac. tract, J. E. Hopkins Sur. ..... Derrick.

UPSHUR COUNTY

Mudge Oil Co.'s No. 9-A Free, 760 ft. from N line and 330 ft. from W line of lease, D. Ferguson Sur. ..... Set csg. 3,603 ft.
Perrin and Fell's No. 6 C. C. Landers, 370 ft. from N line and 2,700 ft. from W line of survey, G. W. Hooper Sur. ..... Derrick.
B. F. Phillips' No. 2 L. P. League, 490 ft. from N line and 1,060 ft. from W line of survey, H. F. Rodgers Sur. ..... Rig up.
Rosier and Pendleton's No. 2 E. C. Evers, 1,780 ft. from W line and 4,700 ft. from N line of survey, G. W. Hooper Sur. ..... Derrick.
Rosier and Pendleton's No. 3 E. C. Evers, 850 ft. from N line and 4,700 ft. from W line of survey, G. W. Hooper Sur. ..... Derrick.
Wadley and Lyons' No. 1 Mrs. Susie Smith, 330 ft. from NW cor. of Mrs. Susie Smith's 130-ac. tract, J. Halbert Sur. ..... Spudding 50 ft.
Wadley & Lyons' No. 3 Shuttlesworth, 330 ft. from S line and 370 ft. from E line of lease, James M. Dunn Sur. ..... Rig up.

VAN ZANDT COUNTY

C. P. Cole et al's No. 1 Mrs. S. Tunnell, 150 ft. from S and E lines of 66-ac. tract, M. Gross Sur. ..... T.D. 1,380 ft.
Golf Oil Co.'s No. 1 Gillentine, 150 ft. from S and E E lines of E 4 acres of 42-ac. tract in Nacogdoches County School Land Sur. ..... Rig up.
Isaac et al's No. 1 E. T. Rhodes, 150 ft. from S and E lines of 33-ac. tract, William Page Sur. ..... Derrick.
G. S. Manning and W. H. Carlin's No. 1 Howell Bivens, 150 ft. E of the W line of Mollie High 5 acres and 150 ft. N of S line of W. H. Bunch Sur. ..... Drlg. 1,314 ft.
Petroleum Pipe Line Co.'s No. 1-A Mrs. S. McGee, 173 ft. from S line and 660 ft. from E line of Blk. No. 20, William Daniel Sur. ..... Testing 1,264 ft.
Pure Oil Co.'s No. 6 H. P. Tunnell, 595 ft. S of N line and 225 ft. W of E line of H. P. Tunnell 131.5-ac. tract, James Rose Sur. ..... Drlg. 2,613 ft.
Pure Oil Co.'s No. 7 C. L. Swain, 250 ft. S of N line and 250 ft. W of E line of O. L. Swain, S 40-ac. tract of E 70-ac. tract, John Walling Sur. ..... Set surface csg.
Reasonover et al's No. 1 D. T. Cole, 150 ft. from S and E lines of 45-ac. tract, Nacogdoches County School Land Sur. ..... Fishing for bailer 1,175 ft.
Van Oil Association's No. 1 Tankersley, 200 ft. from E and 1,000 ft. from S of farm, L. Landers Sur. ..... T.D. 2,350 ft.; skid 50 ft. W and set 10-in. csg. at 181 ft.; waiting on cmt.

Wildcat Operations in West Texas

(Continued from Page 43)

Landreth Prod. and The Texas Company's No. 1 Holt, 660 ft. from S line and 2,025 ft. from E line of Sec. 16, Blk. 43, Twp. 1s, T.&P. Sur. ..... T.P. 4,350-60 ft.; swabbed 17 bbls. of oil showing 3 bbls. of water per day; T.D. 4,450 ft.
Thomas et al's No. 1 Edwards, 330 ft. from S, 2,310 ft. from E, Sec. 38, Blk. 45, Twp. 3s, T.&P. Sur. ..... Set casing at 3,227 ft.
Fred Turner's No. 1-A Addis, 1,650 ft. from N line and 2,300 ft. from E line of Sec. 35, Blk. 45, Twp. 2s, T.&P. Sur. ..... Drlg. 3,095 ft.

FISHER COUNTY

Cranfill & Reynolds' No. 2 George, 330 ft. from N and W lines of NE of Sec. 200, Blk. 1, B.B.B.&C. Sur. ..... Drlg. 2,130 ft.
Southern Oil Co.'s No. 1 Beavers, 330 ft. from W and 660 ft. from S of S half of SW Sec. 194, B.B.B.&C. Sur. ..... Drlg. 2,655 ft.

GARZA COUNTY

P.H.E. Oil Co.'s No. 1 Stoker ..... T.D. 2,909 ft.

GLASSCOCK COUNTY

Humble Oil & Refining Co.'s No. 1 Washer, 330 ft. from N line and 330 ft. from E line of Section 30, Blk. 33, Twp. 1s, T.&P. Sur. ..... Rigging up pumping equipment; T.D. 2,121 ft.
H. O. Wooten's No. 2 W. P. Edwards, 1,650 ft. from E line and 330 ft. from S line of Sec. 17, T.&P.R.R. Sur., Blk. 33, Twp. 1s ..... S.D. 2,195 ft.

HOWARD COUNTY

M. D. Bryant et al's No. 1 L. C. Denman, 2,310 ft. from S and W lines of Sec. 10, Blk. 30, Twp. 1s, T.&P. Sur. ..... Drlg. 1,810 ft.
Oppenauer et al's No. 1 Leatherwood, C of SE of NW, Sec. 25, Blk. 33, Twp. 1s, T.&P. Sur. ..... Material on ground.
L. C. Harrison's No. 4 L. C. Denman, 2,370 ft. from the E line and 2,325 ft. from S line of Sec. 10, T.&P.R.R. Sur., Blk. 30, Twp. 1s ..... Drlg. 2,300 ft.
Sinclair Prairie Oil Co.'s No. 6 Dodge, 330 ft. from S line and 330 ft. from W line of Sec. 11, Blk. 30, Twp. 1s, T.&P. Sur. ..... Swabbing and flowing 50 bbls. of oil per day.
Jack Wallace et al's No. 1 Scott, 990 ft. from N and 330 ft. from E lines of Sec. 93, Blk. 29, W.&N.W. Sur. ..... Shot 20 qts. 1,347-61 ft.; production estimated 5 bbls. of oil per day; T.D. 1,367 ft.

JONES COUNTY

Candor Pet. Co.'s No. 1 Holt, 1,900 ft. from S and 1,800 ft. from W, Sec. 4, Blk. 30, T.&P. Sur. ..... Drlg. 1,745 ft.
Dyer's No. 1 Odom, 200 ft. from S and 170 ft. from W of N 320 acres, G. Zumwalt Sur. ..... Drlg. 35 ft.
Johnson's No. 1 Huddleston, 166 ft. from S and W of N half of N half of Sec. 58, Blk. 16, T.&P. Sur. ..... S.D. 2,550 ft.

LOVING COUNTY

A. & M. Pet. Corp.'s No. 1 Wheat, 2,310 ft. SW, 990 ft. SE, Sec. 71, Blk. 1, W.&N.W. Sur. ..... Cellar.
Oppenauer Drlg. Co.'s No. 1-A Victor, 330 ft. from SW and 330 ft. from SE of NW of N half Sec. 4, Blk. 3, W.&N.W. Sur. ..... Rigging up standard tools.
Goldman et al's No. 2 Allen, 330 ft. from NW, 2,310 ft. from SW, Sec. 94, Blk. 1, W.&N.W. Sur. ..... Rig.
Goldman et al's No. 1 Reagan-McElvain, 330 ft. from NE, 2,310 ft. from NW, Sec. 84, Blk. 1, W.&N.W. Sur. .. Cellar.

PECOS COUNTY

A. & M. Pet. Co.'s No. 1 University, 1,736 ft. from S line and 330 ft. from E line of Sec. 31, Blk. 16, University Sur. ..... Drlg. 1,015 ft.
Humble Oil & Ref. Co.'s No. 1 White-Baker Co., 1,320 ft. from N and E lines of Sec. 44, Blk. E, T.C.R.R. Sur. ..... Cmtd. off gas; T.D. 1,712 ft.
Kimberlin et al's No. 1 B. D. Gregg, 2,482 ft. from NW and 150 ft. from NE, Sec. 101, Blk. 10, H.&G.N. Sur. .. Drlg. 760 ft.
Wahlenmaier et al's No. 1 Monroe, 6,960 ft. W and 330 ft. N from SE cor. of Sec. 41, Blk. 1, L.&G.N. Sur. ... Drlg. 2,209 ft.

REAGAN COUNTY

Big Lake Oil Co.'s No. 8-C University, 710 ft. from S and 2,410 ft. from E, Sec. 12, Blk. 3 ..... Flowed 2,073 bbls.; T.D. 8,300 ft.
Big Lake Oil Co.'s No. 9-C University, 2,410 ft. from N and 765 ft. from E, Sec. 12, Blk. 3 ..... Set tubing; T.D. 8,647 ft.
Big Lake Oil Co.'s No. 10-C University, 2,025 ft. from S and 375 ft. from W, Sec. 25, Blk. 9 ..... Drlg. 8,154 ft.
Big Lake Oil Co.'s No. 11-C University, 2,300 ft. from S line and 2,140 ft. from E line, Sec. 12, Blk. 3, University Sur. ..... Running csg. 3,935 ft.
Continental Oil Co.'s No. 7-B University, 1,900 ft. from N and 650 ft. from W, Sec. 36, Blk. 9 ..... Drlg. 8,625 ft.
Continental Oil Co.'s No. 8-B University, 1,300 ft. from S and 1,775 ft. from W, Sec. 36, Blk. 9 ..... Flowed 4,249 bbls.; T.D. 8,695 ft.
Noel T. Lawson's No. 1 Hughes, 1,980 ft. from S line and 1,980 ft. from E line of Sec. 23, Blk. F, C.&M. Sur. ... T.D. 3,021 ft.; to plug.
J. P. Williams et al's No. 1 Scott, 1,650 ft. from N and 330 ft. from W, Sec. 179, Blk. 1, T.&P. Sur. ..... Drlg. 1,662 ft.

RUNNELS COUNTY

Dutton et al's No. 1 Dean, 5,475 ft. from NE and 1,048 ft. from NW in J. Heil Sur. No. 519 ..... S.O. 3,417-30 ft.; S.D. 3,460 ft
John Castor's No. 1 Hall, 330 ft. from S and W, Sec. 149, E.T.R.R. Sur. ..... Spudded

SCHLEICHER COUNTY

Eastland Oil Co.'s No. 1 Joe Tisdale, C Sec. 29, Blk. M, G.H.&S.A. Sur. ..... Drlg. 5,753 ft.
Wesner et al's No. 1 Nicks, 2,310 ft. from N and 2,302 ft. from E of Sec. 77, Blk. LL, T.C. Sur. ..... Fishing; T.D. 6,250 ft.

UPTON COUNTY

Gulf Prod. Co.'s No. 103 McElroy, 1,980 ft. from S and 660 ft. from W, Sec. 197, Blk. F, C.C.S.D.&R.G.N.G. ... Drlg. 3,048 ft.

WARD COUNTY

George Bentley et al's No. 1 C. Bergman, 330 ft. from NE line and 2,310 ft. from NW lines of Sec. 36, Blk. 5, H.&T.C. Sur. ..... S.D. 2,720 ft.
George Bentley et al's No. 1 A. Emory, 1,320 ft. from NE line and 2,310 ft. from NW line of Sec. 36, Blk. 5, H.&T.C. Sur. ..... T.D. 2,305 ft.
W. A. Black et al's No. 1 Ann B. Gordon, 990 ft. from NW and 330 ft. from NE lines of Sec. 6, Blk. 34, H.&T.C. Sur. ..... S.D. 2,295 ft.
Eppenauer Drlg. Co.'s No. 1 G. S. Comos, 498 ft. from N line and 438 ft. from NW line of Sec. 4, J. W. Hollingsworth Sur. ..... Rig up.
Eppenauer Drlg. Co.'s No. 1 University, 330 ft. from N and 440 ft. from E of S half of Blk. 16 ..... Derrick.
Gerber O. & G. Co.'s No. 1 Stubbs, 330 ft. from S, 990 ft. from W, Sec. 9, Blk. 3, B.&B. Sur. ..... Cellar.
Graham Corp.'s No. 1 Bennett, 2,310 ft. from NE line and 330 ft. from SE line of Sec. 16, Blk. 34, H.&T.C. Sur. ..... T.D. 2,535 ft.; no production gauge.
Gulf Prod. Co.'s No. 16 Hutchings, 1,933 ft. from S and 1,650 ft. from W, Sec. 5, Blk. F ..... Swabbing and cleaning out; T.D. 2,754 ft.
Gulf Prod. Co.'s No. 17 Hutchings, 330 ft. from W line and 1,151 ft. from S line of Sec. 5, Blk. A, G.&M.M.B.&A. Sur. ..... Cleaning out; T.D. 2,614 ft.
Gulf Prod. Co.'s No. 30 O'Brien, 990 ft. from S line and 660 ft. from W line of Sec. 4, Blk. F, G.&M.M.B.&A. Sur. ..... Swabbing and testing; T.D. 2,539 ft.
Humble Oil & Ref. Co.'s No. 1 Louis, Richter et al, 1,650 ft. from the NE line and 990 ft. from SE line of Sec. 27, H.&T.C. Sur., Blk. 34 ..... Running csg.; T.D. 2,464 ft.
Skelly Oil Co.'s No. 2 Brillhart, 1,320 ft. from SE line of Sec. 13, Blk. 34, H.&T.C. Sur. ..... Will not flow through tubing; T.D. 2,513 ft.
Sturm-Simms' No. 4 Jones, 2,310 ft. from NE line and 1,650 ft. from S line of Sec. 25, Blk. B-29, P.S.L. Sur. .. Swabbing and cleaning out; T.D. 2,620 ft.
Wahlenmaier Pet. Corp.'s No. 1 Bergman, 2,310 ft. from NE line and 1,650 ft. from SE line of Sec. 24, H.&T.C. Sur. ..... Running csg. 2,022 ft.

WINKLER COUNTY

Colonial Oil Co.'s No. 2 State-Scarborough, 990 ft. from W and 102½ ft. N of the NE cor. of Sec. 1, School Blk. 77, located in Sec. 1, Blk. W.F. ..... Rig up.
Sid Richardson's No. 1 State-Scarborough, 1,320 ft. E and 102½ ft. N of the NW cor. of Sec. 1, School Blk. 77, located in Sur. No. 1, Blk. WF ..... Fishing; T.D. 2,764 ft.

Wildcat Operations in Texas Panhandle

Week Ending June 5

CARSON COUNTY

Company, well, farm name, section and block— Remarks:
The Texas Co.'s No. 2-B Garner, 990 ft. N and E, Sec. 95, Blk. 4, I.&G.N. Sur. ..... Drlg. 2,965 ft.; tested 9,000,000 ft. of gas at 2,940 ft.

DEAF SMITH COUNTY

Western Union Oil Co.'s No. 1 Farwell, Sec. 18-3n-2e. ... Drlg. 1,500 ft.

GRAY COUNTY

British American Oil Co.'s No. 2 Phillips, 330 ft. from S and W lines of W½ of E½ of Section 27, Block No. 3 I.&G.N. Survey ..... Derrick.
R. Dunlop's No. 1 Priest, 990 ft. S and 330 ft. W Sec. 14, Blk. S, J. C. Short Survey ..... Drlg. 1,415 ft.
Gulf Production Co.'s No. 3-A Catlin, 330 ft. from S and W lines of Gulf lease in NE of Section 57, Block 3 I.&G.N. Survey ..... Drlg. 2,660 ft.
Hendron et al's No. 1 Husselby, 330 ft. S and E of SW SW Sec. 11, Blk. A-9, H.&G.N. Sur. ..... Rig.
Mauds-Shell's No. 4 Coombs-Worley, 990 ft. from N line 330 ft. from E line, Sec. 35, Blk. 3, I.&G.N. Sur. .. Rig.
Tedesco-Bell O. & G. Co.'s No. 4 Morse, 990 ft. N and W SE, Sec. 1, Blk. 24, H.&G.N. Sur. ..... Cleaning out, T.D. 2,542 ft.
The Texas Co.'s No. 4 Brown, 330 ft. N, 990 ft. W of W½ Sec. 137, Blk. 3, I.&G.N. Sur. ..... T.D. 3,264 ft.; T.P. 3,145-55 ft.
Geo. Travis' No. 2-B Webb, 990 ft. N and W, Sec. 61, Blk. 25, H.&G.N. Sur. ..... Drlg. 2,850 ft.
Warner Oil Co.'s No. 1 Webb, 650 ft. from S and W of W 80 of N½ Sec. 42, Blk. 25 ..... U.R. at 2,208 ft.

HUTCHINSON COUNTY

Alexander's No. 1 Cockrell, 330 ft. N and E of E 80 of S 160, Sec. 3, Blk. M-3, T.C. Sur. ..... T.P. 2,926-39 ft.; swabbing 40 bbls.; T.D. 3,029 ft.
Badger Oil Co.'s No. 5 Lewis, 2,278 ft. from S, 330 ft. from W, Sec. 18, Blk. L, E.L.&R.R. Sur. ..... U.R. at 2,950 ft.
Dixon Creek Oil Co.'s No. 1 Haile, 660 ft. east of Alexander's No. 1 Cockrell, Sec. 4, Blk. M-31, T.C.R.R. .. Drlg. 325 ft.
W. E. Means et al's No. 1 Pond, 330 ft. S and E, N½ of E 165½ acres, Sec. 2, Blk. M-31, T.C.R.R. Sur. .. Drlg. 505 ft.
H. Stekol's No. 4-D G. A. Whittenburg, 650 ft. from N line, 990 ft. from W line, Sec. 38, Blk. M-28, T.C. R.R. Sur. ..... Rig up standard tools.

RANDALL COUNTY

Woolsey & Devore's No. 1 Below, 330 ft. N and 1320 ft. E of NE, Sec. 35, Blk. 3, A.B.&M. Sur. ..... Rig up.

WHEELER COUNTY

Bell O. & G. Co.'s No. 1 Evans, 330 ft. N and E of NW Sec. 51, Blk. 24, H.&G.N. Sur. ..... T.P. 2,295 ft.; T.D. 2,338 ft.
Delaney et al's No. 1 Sitter, 330 ft. from S and W of E half NE, Sec. 33, Blk. 24 ..... S.D. 2,711 ft.
Rogers & Harner's No. 1 J. O. Clark, 990 ft. S and W of Sec. 6, Blk. 24, H.&G.N. Sur. ..... Rig.
The Texas Co.'s No. 2 Bentley, 330 ft. N and W of W½ of SW¼, Sec. 42, Blk. 24, H.&G.N. Survey .... Drlg. 415 ft.

Refiners Ask for More Oil From Oklahoma and Commissioners Are Deluged With Petitions

By W. A. SPINNEY
Staff Correspondent, Oklahoma Fields

Champlin Refining Co. seeks removal of proration in all fields in Oklahoma.

The company presented its new attack on proration at the Oklahoma Corporation Commission's hearing, when it offered testimony tending to show that curtailment of oil production was no longer needed in any field in Oklahoma, with the exception of the Wilcox sand zone in the Oklahoma City Field.

The company subpoenas a number of witnesses, including the former state umpire, Ray M. Collins, and members of the former state-wide proration committee. The testimony was aimed at the Greater Seminole area and the Simpson sand zone in the Oklahoma City Field.

The Shell Petroleum Corp. is asking for an additional supply of crude oil from the Wentz Pool in the Lucien area, in Township 20-2w, Noble County, so that the recently completed wells in that field can be operated. The five completed wells in that area are estimated to have a potential of 18,000 bbls. a day. Hearing has been set for June 20. The company asks for 12,000 bbls. a day from this field. These wells have been considered wildcats and allowed 50 bbls. a day each. At the present time the Continental Oil Co. is taking the oil from the field, but the Shell Petroleum Corp. has started work on 26 miles of pipe line into the field to tie its main pipe line to these wells. The new line is expected to be ready by June 25.

The daily average production from the principal areas in the State for the week ending June 3 was as follows:

Pool—	Week ending June 3	Past week
Bowlegs	7,485	9,105
Bristow-Slick	10,000	10,000
Burbank	9,750	9,750
Carr City	7,835	7,935
Earlsboro	10,800	11,385
East Earlsboro	15,160	16,070
South Earlsboro	1,455	1,635
Little River	12,865	16,550
East Little River	1,115	1,160
Oklahoma City	141,181	90,400
Seminole City	9,235	9,395
Tatums	4,000	4,000
Total	231,881	187,935
Others	186,690	190,450
Total State	418,571	378,385

Gypsy's Important Test

Gypsy Oil Co.'s No. 1 McConnell, C NE SE Section 28-17-4w, Logan County wildcat, was the center of interest over the week-end as the result of finding a showing of gas in sand at 4,870-96 feet. The crew was bailing the mud from the hole and had cleaned out approximately 1,500 feet of mud and water when the gas began to agitate the fluid and later it flowed the balance of the mud and water from the hole. Operations at the well were shut down until the boiler is moved back, and it is expected to be the last of the week before an additional test is made of the showing.

The gas showing was believed to have been found in the Layton sand and it is somewhat higher on structure than the other producing well southeast of it, the Eason Oil Co.'s No. 1 Katscher, which was completed more than a year ago.

In the same county the Shell Petroleum Corp.'s No. 1 Faulkner, C SE NW Section 11-15-4w, a wildcat test was drilling at 6,050 feet. It found a showing of oil in sand at 4,990-5,063 feet and the top of the checkerboard at 5,235 feet.

Garfield County Wildcat

In Garfield County, Continental Oil Co. and others' No. 1 Thompson, NW cor. SW SW Section 7-24-4w, a wildcat test, was making salt water from the Wilcox sand at 6,273-75 feet. The first Wilcox sand was found at 6,155-99 feet and the second Wilcox sand at 6,208 feet.

In Payne County the Amerada Petroleum Corp. and Stanolind Oil & Gas Co.'s No. 1 Mitchell, SE cor. NE SW Section 15-18-3, found the Viola lime at 4,210 feet and has resumed operations after cementing casing at that depth.

An Oklahoma County Wildcat

It is reported that negotiations are under way for a wildcat test by Cromwell-Franklin Petroleum Corp., east of the Mid-Kansas Oil & Gas Co.'s No. 1 Messer, west of Edmond, in northern Oklahoma County. The location of the new test will be made in the E half of SE of Section 33-14-3w, on a lease that expires this year. Arrangements for water and gas supplies were being made last week and the exact location of the test is expected to be announced in a short time. The company has a number of leases in the township, a short distance from the producing well, but development has been delayed.

Wildcat Operations in Oklahoma

Northern Oklahoma

ALFALFA COUNTY

Company, farm and location—	Remarks:
Acre et al's No. 1 Acre, C SW NE Sec. 14-24-11w	O.W.D.D.; cmtng. 6-in. csg. at 5,526 ft.

BECKHAM COUNTY

Pattee Royalty Co.'s No. 1 Goose Tree, SW SE SW SE Sec. 32-10-23w	Drlg. 2,230 ft.

CADDO COUNTY

Denver P. & R. Co.'s No. 1 Noe, NW SW SW Sec. 34-10-10w	Drlg. 3,854 ft.
W. L. Miller's No. 1 Gardner, SE SW Sec. 26-6-10w	Rig.

COAL COUNTY

Dodd & Burton's No. 1 Grigsby, NW SE NE Sec. 35-1-8	Oil show 1,858-67 ft; C.O.
Funk & Russell's No. 1 Miller, SE NE Sec. 10-2-8	Drlg. 2,940 ft.

GARFIELD COUNTY

Continental Oil Co.'s No. 1 Thompson, NW SW SW Sec. 7-24-4w	Drlg. 6,257 ft.

HUGHES COUNTY

Dixie-Lee Oil Co.'s No. 1 Taylor, C NW Sec. 27-5-10	Drlg. 350 ft.
Gilcrease Oil Co.'s No. 1 Thompson, NW SE Sec. 34-7-8	Drlg. 200 ft.
Pioneer Pet. Co.'s No. 1 Brock, SE cor. Sec. 26-5-11	Rig.
Redwine et al's No. 1 Badger, C N half SW SW Sec. 4-5-11	Drlg. 330 ft.

KAY COUNTY

Blauner et al's No. 1 Maple, NE NW SE Sec. 30-27-4	Drlg. 660 ft.

KIOWA COUNTY

Christian's No. 1 Jones, NE NW Sec. 8-7-18w	Drlg. 1,705 ft.
McWhirter et al's No. 1 Vanderneck, NE NW Sec. 3-7-19w (O.W.D.D.)	Drlg. 2,155 ft.

LOGAN COUNTY

Gypsy Oil Co.'s No. 1 McConnell, C NE SE Sec. 28-17-4w	W.O.C.S. 4,854 ft.
Shell Pet. Corp.'s No. 1 Faulkner, C SE NW Sec. 11-15-4w	Drlg. 5,900 ft.

MURRAY COUNTY

A. E. Harden's No. 1 Sadler, NE Sec. 19-1-2	Rig.

MUSKOGEE COUNTY

J. S. Routt et al's No. 1 Escoe, CWL SE NE Sec. 17-13-17	Machine.

NOBLE COUNTY

Shell Pet. Corp. 's No. 1 Farr, C NE NE, Sec. 19-20-2w	Wilcox sand 5,000-27 ft; second sand 5,065-5,144 ft; 530 bbls. in 2 hrs.
Sinclair Prairie's No. 1 Jerome, SW cor. Sec. 15-20-2w	Drlg. Wilcox sand 5,256 ft.

OKLAHOMA COUNTY

Mid-Continental Oil Co.'s No. 1 Edwards, C SE SE Sec. 19-11-1	Rig.

OKFUSKEE COUNTY

Natl. Investors' No. 1 Billy, SE NW NW Sec. 29-12-9	Drlg. 3,827 ft.

PAWNEE COUNTY

Rookstool's No. 1 Wylie, C NE SW Sec. 6-20-5	Comp. 1,942-51 ft; 1,000,000 ft. gas.

PAYNE COUNTY

Kemp & Nunnelee's No. 1 Crane, SW SE SW Sec. 10-17-6	Drlg. 960 ft.
O. N. Maines et al's No. 1 Scheidberg, NW SW NW Sec. 27-22-6	Drlg. 2,600 ft.

PITTSBURG COUNTY

Moffett & Hall's No. 1 Jones, C NE NW Sec. 14-8-14	Drlg. 1,650 ft.

PONTOTOC COUNTY

Brydia et al's No. 1 Thomas, SW NE Sec. 20-3-7	Rig.
Gilbert's No. 1 Starritt, NW SE Sec. 28-4-6	W.O.S.C. 850 ft.
Choctaw O. & G. Co.'s No. 1 Thompson, SW NE SW Sec. 1-1-7	Drlg. 1,050 ft.
W. E. McGraw's No. 1 Mayhue, NE Sec. 19-2-6	Drlg. 675 ft.
Williams' No. 1 Kroth, NE SE Sec. 32-3-4	Fishing 1,717 ft.
Wirrick's No. 1 Lee, SE SW Sec. 29-2-7	Drlg. 1,370 ft.

POTTAWATOMIE COUNTY

Payne Drlg. Co.'s No. 1 Lovelace, NW SW NW Sec. 27-6-4	Drlg. 2,623 ft.

SEMINOLE COUNTY

Filmlee's No. 1 Bowlegs, SE NE SW Sec. 1-7-7	Drlg. 440 ft.
Armstrong et al's No. 1 Diamond, NE SE SW Sec. 8-8-7	Spudding.
Donnelly et al's No. 1 Shepard, SE NE Sec. 4-8-8	Sand 1,395-1,405 ft; wtr.; fishing 1,640 ft.

Southern Oklahoma

ATOKA COUNTY

Blake's No. 1 Galbreath, SW NE SE Sec. 5-1-15	Drlg. 1,000 ft.
L. E. Stewart et al's No. 1 Stewart, SE SE Sec. 2-4s-10	Drlg. 1,607 ft.
Wacker et al's No. 1 Baskett, SW NE NW Sec. 18-1-15	Drlg. 190 ft.

CARTER COUNTY

P. Turner's No. 1 Dove, NE NW SE Sec. 3-5-1	Rig.
E. M. Boring's No. 1 Morgan, C NE NW SW Sec. 4-1s-3w	Showing 12,000,000 ft. gas 2,038 ft; C.O.; set 8-in. 1,795 ft; showing 10 bbls. per hr.; 8,000,000 ft. of gas.

JEFFERSON COUNTY

Abbott et al's No. 1 Simmons, NW cor. Sec. 14-4s-6	Drlg. 815 ft.
Hobbs' No. 1 Barnett, NE SE SW Sec. 32-5-5w	Drlg. 2,190 ft.
Wakefield's No. 1 Kelly, NW SE Sec. 1-5-5w	Drlg. 550 ft.

MARSHALL COUNTY

Thomas' No. 1 Setliff, SW SE SE SW Sec. 26-5-6	Drlg. 1,110 ft.

STEPHENS COUNTY

Doyle Oil Co.'s No. 1 Cunningham, SE NE NW Sec. 4-1-6w	Drlg. 2,445 ft.
Navajo O. & G. Co.'s No. 1 Martin, SE SW NW Sec. 18-1-5w	Drlg. 3,924 ft.

TILLMAN COUNTY

Emenheeser et al's No. 1 Pace, C SW Sec. 3-4s-17w	Drlg. 2,960 ft.
Gypsy Oil Co.'s No. 1 Pitcher, NW Sec. 36-4s-15w	Drlg. 2,764 ft.

In southern Oklahoma the wildcat test of the Navajo Oil & Gas Co. and others' No. 1 Martin, SE cor. SW NW Section 18-1-5w, on the Cruse structure in Stephens County, was drilling at 4,050 feet after fighting a cave most of the week at 3,950 feet.

The wildcat test of Doyle Oil Co.'s No. 1 Cunningham, SE cor. NE NW Section 4-1-6w, Stephens County, was shut down at 2,415 feet after completing a fishing job at that depth. It is reported that a deal has been made for E. Payne and others to take over the test and drill it deeper to a total depth of 3,500 feet.

F. H. McHenry and others' No. 1 Williams, NW cor. SE Section 19-2-8w, a wildcat north of Duncan, was shut down at 3,004 feet. The operators plan to plug it back to a sand at 2,416-22 feet and make a production test.

English & Ketch's No. 1 Pruitt, SE cor. NE Section 14-2-5w, Stephens County, a wildcat south of the Carter-Knox Field, found a showing of oil at 2,014-19 feet and will make a drill stem test.

Acid treatment has been successfully used on a number of wells in the Tatums Field in Carter County, and many believe this method will be used in reconditioning wells in the broken sand areas in the southern Oklahoma fields.

K-D Drilling Co. and others' No. 2 Burton, SW cor. NW SW Section 30-1s-2w, in the Tatums Field, in Carter County, which was completed about two weeks ago and swabbed 180 bbls. of oil a day, was given a treatment with acid, and made 625 bbls. of oil in 12½ hours. The oil was found in a series of sands at 2,303-2,435 feet.

P. Turner and others' No. 1 Carter, SW cor. NW Section 13-1s-2w, which made 35 bbls. of oil in 15 minutes on its initial flow and 15,000,000 feet of gas a day, was again given a production test and made 52 bbls. of oil in 15 minutes and it was estimated that gas had increased.

Youngblood and others' No. 1 in the SW cor. SE SE Section 29-3-7w, Grady County, is a location. It is about a half mile north of the English Drilling Co.'s No. 1 Heenan-Coe, in Section 32-3-7w, which is shut down at 3,504 feet.

The Oklahoma Corporation Commission announces that the following cases have been continued to the following dates named: Cicero I. Murray vs. Eason Oil Co., overproduction from June 8 to July 13; Cicero I. Murray vs. Wirt Franklin Petroleum Corp., from June 8 to July 13. Chatham Oil Co. adjusted allowable, from June 9 to July 13. Pickwick Oil Co.'s application to shoot well, from June 23 to July 18; British American Oil Co.'s application to shoot well, from June 23 to July 18; Westgate Oil Co. and Jacob Oil Co., application to reduce potentials, from June 23 to July 18; Nebo Oil Co., application to shoot well, from June 23 to July 18; Skelly Oil Co., application to

shoot well, from June 23 to July 18; applications of Peacock Refining Co., Slick Pipe Line Co., and Anderson-Prichard Petroleum Corp., exemptions from common carriers, from June 27 to July 18.

Hearing on Proration

The corporation commission began its hearing on May 31 on whether proration is needed in Oklahoma and if so, what rules and regulations are to apply in order to conserve the natural resources.

This is the commission's first step to conform with the proration law recently passed by the state legislature. It was believed that the hearing will continue some time and it will probably cover every branch of the industry.

The first witness to testify was C. M. Keeler, deputy state umpire at the present time. He has spent the last three years in the Oklahoma City Field and has been employed in other fields in the State. His testimony was on definitions of waste and means of preventing same. He testified that as to economic waste and objections were entered by Harry Glasser, attorney for Champlin Refining Co., but the witness continued. A number of other objections were made during the hearing.

Definition of Waste

The term waste was defined as follows, the production of oil and gas or both when the cost of producing is more than the amount received for the product; when handling leads to loss of the product, escape of gas into the air, permitting water to enter oil or gas sand, evaporation while in storage or handling, permitting oil to run on ground, into creeks or streams or earthen storage or reservoirs.

Economic waste was defined as the production of oil and gas when the cost of production or handling is less than the amount received for it. This definition was opposed by the attorneys.

Physical waste may occur either above or below the ground by means of physical equipment when product is reduced to possession.

Underground waste is brought about when production is greater than amount needed, occasioned through faulty casing sets, lack of shutting off water, leaking casing, trapping off oil in the sand either by water or gas, drilling through both oil and gas sands, drilling into water sands.

Waste was cited in testing under the present method, since only one factor was now used in the Oklahoma City Field, the open flow method through the capacity of the pipe. It was suggested that potentials be determined on permeability of sand, acreage, reservoir pressure and sand penetration and thickness.

Allowable Production

On June 1, the Oklahoma City Field with the exception of a few wells, was back on regular production. However, the field was producing only around half of its allowable, due to the refusal of some of the operators to sell their crude oil at 25 cents per barrel.

Wells producing from the Wilcox sand were permitted to produce 9.2 per cent of their four-hour potential, which is the same rate these wells produced during May. The total allowable of the Wilcox sand zone is around 106,200 bbls. daily.

Wells in the Simpson sand zone, below the Wilcox sand, will be permitted to produce 29 per cent of their four-hour potential, which is the same rate they produced during May. A minimum of 930 bbls. for the month is allowed each well. Wells making more than 10 per cent water will be allowed a flat 100-bbl. margin. The total allowable from this zone will be around 52,525 bbls. daily.

Wells in the fault line zone will be permitted to produce 13.4 per cent of their four-hour potential, or a minimum of 930 bbls. per well per month. The allowable for the entire zone will be 255 bbls. per day.

Wells in the Siliceous lime zone will be permitted to produce to capacity.

The new order also permits the carrying over into June the underproduction accumulated during the month of May.

The Shell Petroleum Corp. petitioned the corporation commission for the removal of the wildcat restrictions on production on its four wells in the School Land sand in the Roxana Pool, in Logan County. This was continued until June 9. The company wanted to take approximately 750 bbls. per day from each well in the field. The wildcat wells in the State are now permitted to produce 50 bbls. per well per day.

The Rock Island Refining Co., of Duncan, petitioned the commission for an additional 1,000 bbls. a day from the Tatums Pool, in Carter County, so that its refinery runs may be increased. The company has been securing its refinery requirements from the Duncan and Walters districts, but the output from these fields has not kept pace with the requirements of southern Oklahoma refineries.

Drawing on Stocks

At the hearing before the corporation commission, R. B. Roark, superintendent of production for the Shell Petroleum Corp., testified that the company has reduced its crude oil stocks in Oklahoma to 527,000 bbls. during the last four months and that now the company was faced with larger current demand and wanted the allowable increased in the Roxana Pool, of northern Logan County.

The total stocks in Oklahoma of the Shell Petroleum Corp. were 902,000 bbls. on March 1, and Mr. Roark estimated that the stocks on hand June 1, were 375,000 bbls. The company now needs 35,000 bbls. daily from Oklahoma during the month of June to meet its demands.

The petitions of the Rock Island Refining Co. and one by the Sunray Oil Co. for 500 bbls. a day additional from the Allen Field in Pottawatomie County, were continued until June 9.

The present daily production in the Roxana Pool, in Logan County, is approximately 1,700 bbls., but only 100 bbls. a day is coming from the School Land sand and the balance from the older wells producing from the Wilcox sand. The older Wilcox sand wells are making considerable water, while the School Land sand still is clean. R. B. Roark also testified that the Shell Petroleum Corp. purchases about 50 per cent of its requirements and the remainder comes from its own wells, in Oklahoma.

J. S. Cosden, Inc., with one well in the School Land sand, joined the Shell Petroleum Corp. in its plea. Objection to the increase in the allowable was made by Lee Taliaferro, superintendent for L. H. Wentz Oil Corp. He said that the pressure was dropping fast on his company's well and that it was not profitable to operate the well at the present crude oil prices.

The potential tests on wells in the Oklahoma City Field were nearing completion. Less than 100 wells remain to be taken including both the Wilcox sand and Simpson sand. The remaining tests will be made during the month of June. Many of these wells will not take an open flow test but will have their potentials fixed on a decline curve of wells in the Simpson sand zone. Some wells are being conditioned to take new tests.

The average decline to date in the Wilcox sand zone is now about 48 per cent of the previous potential. In the northern part of the field the decline in the Simpson sand is around 50 per cent and in the southern part of the field it is around 30 per cent. Complete figures on all zones in the Oklahoma City Field will not be available until the latter part of June, it was estimated at the state umpire's office.

Atoka County

Blake and others' No. 1 Sanders, NE cor. SW SE NE Section 5-1-15, was drilling at 20 feet. Skelly-Spring Oil Co.'s No. 2 So. Tr., C N L NW SW Section 3-1-14, was abandoned at 208 feet.

Creek County

Atlantic Oil Producing Co.'s No. 1 Harjo, SE cor. NE Section 27-14-10 (old well drilled deeper), total depth 3,255 feet, rigging. J. E. Crosbie's No. 5 Escoe, C E L, W half NE SW Section 26-18-8, made 200 bbls. from 1,283-1,303 feet. Borger and others' No. 10 Fulkerson, NW cor. SW NW Section 5-17-7 (old well drilled deeper), made 2 bbls. from 2,457-67 feet. Sherry and Murta's No. 3 Cruel, C S half SW NE Section 36-17-11, made 40 bbls. from 2,638-39 feet.

Carter County

C. Scott Oil Co.'s No. 1 Carter, SW cor. NW NW Section 13-1s-3w, is a location. Carter Oil Co.'s No. 1 Perkins, SE cor. NW SW Section 2-1s-3w, is a location.

Garfield County

Champlin Refining Co.'s No. 2 Gibson, C NW SE SE Section 25-23-4w, made 75 bbls. from 5,169-5,212 feet.

Jefferson County

Linson and others' No. 2 Davis, NW cor. SW NW Section 2-4s-8w, was abandoned at 1,935 feet.

Lincoln County

Pure Oil Co.'s No. 1 Myer, Lot 7, Section 1-15-6, made 90 bbls. from 3,685-3,739 feet. Same company's No. 3 Unglesbe, Lot 9, Section 1-15-6, was temporarily abandoned at 3,683 feet.

Logan County

Shell Petroleum Corp. and others' No. 1 Story, SE cor. SW Section 30-19-4w, made 1,273 bbls. from 6,110-53 feet.

Muskogee County

Braman Oil Co.'s No. 7 Jackson, SE cor. NW Section 8-13-16, made 1 bbl. from 1,648-61 feet.

Noble County

Shell Petroleum Corp.'s No. 1 Schonwald, C NW NE Section 20-20-2w, is a location. Same company's No. 1 E. Farr, C NE NE Section 19-20-2w, made 1,110 bbls. in four hours and 40 minutes, from 4,985-5,144 feet. Same company's No. 1 Whitten, C SE SE Section 7-20-2w, made 1,550 bbls. in three and one-half hours.

Okmulgee County

Claude Drilling Co.'s No. 6 Hawkins, SE cor. NW Section 4-11-12, was abandoned at 3,045 feet. J. S. Wise's No. 1 Postoak, NW cor. NE SW Section 6-14-11, was abandoned at 3,158 feet.

Payne County

Deep Rock Oil Corp. and others' No. 5 Hawk, SW cor. NW NE Section 9-18-5, (old well drilled deeper), made 573 bbls. from 3,550-54 feet. F. C. Hall's No. 1 Newby, SW cor. NW Section 28-19-5, was abandoned at 3,861 feet.

Pawnee County

Rookstool's No. 1 Wylie, C NE SW Section 6-20-5, made 1,000,000 feet of gas from 1,942-51 feet.

Pottawatomie County

Wood Oil Co.'s No. 1 Tobin, SE cor. NW NW Section 22-7-5, is a rig. Same company's No. 1 Ashby, SW cor. NE NW Section 22-7-5, made 120 bbls. from 3,030-40 feet, total depth 3,207 feet.

Seminole County

Winona Oil Co. and others' No. 1 Campbell, SE cor. SW SW Section 20-7-8, is a location. Hall & Briscoe's No. 2 Brown, NW cor. SW NW Section 33-7-4, is a rig. Gypsy Oil Co.'s No. 3 Rentie, NW cor. NE NE Section 17-9-6, made 797 bbls. from 4,236-48 feet. Pierce and others' No. 2 Phillips, SE cor. SW SE Section 8-9-6, made 1,332 bbls. from 4,218-49 feet.

Stephens County

Pace and others' No. 3 Gilbraith, C SE NW NW Section 2-2s-8w, was drilling at 20 feet. McAlester's No. 2 Dare, NE cor. SW SW NW Section 1-2-8w, was abandoned at 2,230 feet. McHenry's No. 1 Williams, NW cor. SE Section 19-2-8w, was abandoned at 3,004 feet.

Wagoner County

Helvie and Stout's No. 2 Taylor, C S L SW NE Section 24-18-15, is a location. Dunbar's No. 1 Johnson, SW cor. NW SE SW Section 22-18-15, made 500,000 feet of gas from 853-67 feet. R. Godfrey's No. 2 Norfer, C E L SE SE Section 14-18-15, was abandoned at 1,017 feet.

IMPORTANT BOOKS
for the Oil Man's Library

"OIL ECONOMICS"

Campbell Osborn, an attorney and economic engineer of Tulsa, has prepared a very interesting book entitled "Oil Economics," that is worth many times its small cost to anyone interested in that subject.

The average man has little time to make a detailed study of all of the fundamental principles of conditions affecting this great essential industry. Mr. Osborn has done this in his book, and it is so written as to be easily read and understood.

The main purpose of the book is to give a brief review of the main economic facts relating to oil, and a concise, clear, useful explanation of the methods of analyzing and forecasting price movements and profits. Many business men have viewed "economics" as a highly theoretical science calculated to support or destroy the relations between capital and labor and of little value in the investment of money or in the management of property.

However, the author believes that through economic principles a useful understanding of the practical values of oil investments can be secured and that this book will prove of use to anyone needing such information.

The net results of the work of oil men everywhere are finally written into prices, and consequently a study of the forces that control values takes the economic engineer into virtually all branches of the industry. The most important factors are demand, supply, costs, and the human equation of management. The book is written mainly from the viewpoint of price and its controlling factors. The importance of demand has been emphasized because of its predominant influence.

It is believed that the present condition of oversupply is not permanent and reserves will be exausted in a comparatively few years. As this condition of better balance between available crude oil and daily demand prices will be stabilized and the wise investor will look forward to such time and should then be in position to secure good returns upon his present investment.

To make such wise investments will require a knowledge of the fundamental principles of oil industry operation, and it is such information that Mr. Osborn has gathered together into this book.

"Oil Economics" may be purchased through the Book Department of The Oil and Gas Journal at the regular price of $4 postpaid, payable by check or money order when book is ordered.

Kansans Hold Back Oil for Higher Market Price; Wilcox Sand in Hollow Pool Is Important

By W. A. SPINNEY
Staff Correspondent, Kansas Fields

McPherson and Harvey Counties continue to lead in activity in Kansas at this time. The new Wilcox sand well of the Producers & Refiners Corp., in the Hollow Pool, in Harvey County, is rated at 100 bbls. an hour on its initial tests.

Another interesting wildcat test was announced during the week in McPherson County. It is Clum and the Washoma Petroleum Corp.'s No. 1 Nelson, NW cor. SE NW Section 12-18-4w. It is located about 7 miles northwest of the nearest other production. The test was spudding and the surface casing has been cemented. The territory surrounding it has been considered favorable for a number of years and most of the land has been under lease for some time. A number of major oil companies hold acreage in the vicinity, including the Texas Co. and Empire Oil & Refining Co.

Extensive core drill surveys have been made of the area and it is reported favorable structures have been found. Clum and others' test is being drilled as the result of these findings.

Production of Principal Pools

The daily average production of the principal pools in the State for the week ending June 3, was as follows:

Pool—	Week ending June 3	Previous week
Hollow	5,260	5,400
Ritz-Canton	13,250	13,550
Voshell	5,875	5,970
Sedgwick County	10,445	10,645
Mabee (Nikkel)	6,010	6,165
Ellsworth County	1,775	1,840
Barton County	700	625
Rice County	3,400	3,410
Reno County	1,435	1,500
Stafford County	200	200
Total	56,350	54,305
Others	51,450	51,395
Total state	107,800	105,700

Notwithstanding the slight increase in production over the previous week many operators in Kansas refuse to take 25 cents a barrel for their crude oil, resulting in a substantial reduction compared to what a higher market price would bring out.

Operators in a number of pools in Kansas have been producing only wells that are making water with the oil, and are shutting down clean-oil wells. In the shallow areas producers have been filling their storage on leases and then holding the oil for an increase in the posted price.

Recent Completions

In the Ritz-Canton Pool, in McPherson County, Palmer and the Shell Petroleum Corp.'s No. 2 Winn, in Section 7-20-2w, in the south edge of the field, found a showing of oil in the Viola lime at 3,401-18 feet. The oil rose 500 feet in the hole in four hours. The owners will give the well a treatment of acid in an effort to increase its production.

Drum and others' No. 1 Severton, in Section 9-19-2w, in the Decker Field in McPherson County, found the top of the chat at 2,951 feet and the crew was cementing the casing at that depth before drilling deeper.

In the Mabee Pool, in McPherson County, the Mid-Kansas Oil & Gas Co.'s No. 3 Schmidt, in Section 33-21-3w, swabbed 1,128 bbls. of oil in 12 hours after being treated three times with acid at a total depth of 3,545 feet.

In the Voshell Pool, in McPherson County, the Stanolind Oil & Gas Co.'s No. 4 Zerger, in Section 16-21-3w, swabbed 180 bbls. of oil in five hours from the Siliceous lime at 3,446-49 feet. Before the swabbing test the oil rose 3,200 feet in the hole. It was free from water.

In the Johnson Pool, in McPherson County, the McPherson Oil & Gas Co.'s No. 1 Bridges, in Section 2-20-3w, found oil and gas in the chat. The first gas was found at 3,000-09 feet and the oil at 3,018-48 feet. The oil slops over the top of the hole twice a day and it was showing some water. It was estimated at 600 bbls. a day.

In the Burrton area, Reno County, Olson and others' No. 2 Adkins, in Section 35-23-4w, was making gas and oil from the chat. The gas was estimated at 23,000,000 feet a day from chat at 3,286-3,319 feet. The oil was showing at 3,329 feet. The casing will be landed at 3,329 feet and a production test made of the oil showing.

McPherson's Water Situation

The Kansas oil advisory committee reports that with reference to the water situation in the Voshell Pool, in McPherson County, the committee has recommended that an experiment be made on wells in the field making an excessive amount of water and that these wells be allowed to produce not to exceed 50 per cent of their present allowable for the period of 15 days commencing immediately. It was hoped that by this test the producers can take care of the water without injury to the wells and the offsetting properties.

Producers owning the wells which the committee considered as having excessive water are therefore permitted to produce on the above basis for a period of 15 days. This overproduction will be counted as overage during the period and at the end of the 15 days the matter will again be considered by the committee and producers and further action taken at that time.

The committee found that the wells and oil and water production from each for the 24-hour tests between April 24 and May 4, were as follows:

Company and well—	Oil	Water
Barnsdall Oil Co.'s No. 2 Krehbiel	165	365
Barnsdall Oil Co.'s No. 5 Krehbiel	135	351
Derby Oil Co.'s No. 2 Stucky	228	915
Derby Oil Co.'s No. 3 Stucky	167	739
Empire O. & R. Co.'s No. 4 Voshell	190	1,355
Gypsy Oil Co.'s No. 2 Kinney	48	252
Mid-Kansas' No. 3 Voshell	137	177
Sinclair Prairie's No. 10 Morehouse	62	257

The total oil production of the 27 wells considered was 2,570 bbls. of oil and 5,489 bbls. of water.

In order to find out how much production of oil above the present market allowable of 35 per cent is required to prevent water damage, it was agreed that the umpire might allow these wells to pump an additional 50 per cent of the 35 per cent allowable for 15 days as an overage run.

Hollow Pool's New Importance

The Hollow Pool in Harvey County is showing additional importance since the discovery of Wilcox sand, which is the fourth producing horizon found in that area.

The discovery well was the Producers & Refiners Corp.'s No. 2 Marten, SE cor. SW SE, Section 19-22-3w, which made 35 bbls. of oil an hour from the Wilcox sand at 3,411-13 feet. The well was swabbed a short time and is showing a potential of 875 bbls. a day. It probably will be drilled deeper into the Wilcox sand in an effort to increase its production.

Successive Acid Treatment

Wells recently treated with acid in the Hollow Pool include the following: Shell Petroleum Corp.'s No. 1 Schmidt, SE cor. NE, Section 5-22-3w, shot and also treated with acid in the Hunton lime at 3,501-23 feet and made 576 bbls.; same company's No. 1 Schmidt, NE cor. NW SW, Section 17-22-3w, given a treatment of acid in the Hunton lime at 3,452-74 feet and made 1,006 bbls. of oil in 21 hours; Sinclair Prairie Oil Co.'s No. 1 Ediger, NE cor. SW, Section 19-22-3w, swabbed 720 bbls. of oil after being treated with acid in the Hunton lime at 3,452 feet; Skelly Oil Co.'s No. 2 Martens, SE cor., Section 19-22-3w, given a treatment with acid in the Hunton lime at 3,452-84 feet and made 1,080 bbls. of oil in 21 hours.

Big Gasser Sprays Oil

Shell Petroleum Corp.'s No. 2 Nikkel, in Section 8-22-3w, in the northern part of the Hollow Pool in Harvey County, found the chat at 3,152 feet and after being bailed down and casing landed at 3,153 feet it made 56,500,000 feet of gas from 3,156-66 feet. It was spraying oil at a total depth of 3,203 feet. The rock pressure of the gas at the bradenhead was 875 pounds when it was opened up for five minutes.

Hollow and others' No. 2 Schmidt, Section 17-22-3w, in the Hollow Pool, found oil in the Hunton lime at 3,442-48 feet where the oil rose 1,000 feet in the hole in one hour and 2,200 feet in the hole over night. The owners shut the well in at a total depth of 3,452 feet and will not make a production test until the market price of crude oil has been advanced.

Stanolind Oil & Gas Co. and others' No. 2 Froese, in Section 20-22-3w, in the Hollow Pool, swabbed 600 bbls. of oil in 19½ hours from the Hunton lime at a total depth of 3,494 feet.

W. C. McBride, Inc.'s No. 2 Schmidt, in Section 30-22-3w, in the southern part of the Hollow Pool, swabbed 550 bbls. of oil in 15 hours from the Hunton lime at a total depth of 3,427 feet.

New locations announced during the week in Harvey County include Olson Oil Co. and others' No. 1 Sabin, C SW SW, Section 18-23-3w, and the same company's No. 1 Day, C NW NW, Section 19-23-3w.

Cowley and Greenwood Completions

Roth and Farout's No. 4 Reidy, NW cor. SW, Section 32-31-8, Cowley County, pumped 37 bbls. of oil a day from the sand at 1,930-52 feet after a shot.

C. Enright and others' No. 1 Moser, NE cor. SW, Section 33-22-12, Greenwood County wildcat southeast of Madison, found the Mississippi lime at 1,860 feet and after drilling to a total depth of 1,910 feet where it found a hole full of water it was abandoned. Central States Oil Co.'s No. 1 Hull, CNL NE SE, Section 26-31-10, Elk County, found a showing of oil and water in the Pern sand from 1,545-93 feet. The Oswald lime was found at 1,665-92 feet and the total depth of the well was 1,710 feet where it was abandoned.

Harvey County

Olson Oil Co. and others' No. 1 Sabin, S SW SW Section 18-23-3w, is a location. Same company's No. 2 Day, C NW NW Section 19-23-3w, is location. Producers & Refiners' No. 3 Martens, NW cor. SE Section 19-22-3w, is a location. United Petroleum Co.'s No. 1 Thesson, NW cor. Section 29-22-3w, was abandoned at 3,553 feet. W. C. McBride, Inc.'s No. 2 Schmidt, NW cor. NE NE Section 30-22-3w, made 167 bbls. from 3,400-24 feet.

McPherson County

Wakefield and others' No. 1 Koehn, C N L NE NW Section 36-19-2w, was drilling at 600 feet. Johnson and others' No. 2 Shaw, SW cor. Section 21-19-1w (old well drilled deeper), was drilling at 2,961 feet. Helmerich and Payne's No. 2 Russell, SE cor. NW SW SE Section 23-19-2w, was drilling at 200 feet. Stanolind Oil & Gas Co.'s No. 4 Zerger, SW

(Continued on Page 78)

Wildcat Operations in Kansas

(Descriptions are East unless marked otherwise)

BARTON COUNTY

Company, farm and location— Remarks:

Noble Drlg. Co.'s No. 1 Grant, SW SW Sec. 4-20-11w.... T.D. 3,362 ft; P.B. to 3,325-35 ft. pumped 12 bbls. daily.

Rankin et al's No. 1 Scoog, C SW NE Sec. 34-18-12w .. Drlg. 3,400 ft.

COWLEY COUNTY

E. Yarnell's No. 1 Speer, SE NE NE Sec. 31-32-6 ..... Rig.

ELK COUNTY

Austin et al's No. 1 Wade, C NE NE Sec. 9-29-12 ..... Drlg. 1,715 ft.

Anderson et al's No. 1 Smith, C NW SW Sec. 21-29-9.... 12 bbls. per hr., 2,333-50 ft.

ELLSWORTH COUNTY

Rex Etnyre's No. 1 Arnsman, C SW SW Sec. 10-15-7w.. Rig.

GRAHAM COUNTY

Schleimeyer et al's No. 1 Smith, SE Sec. 24-8-25w..... Fishing 4,130 ft.

GREENWOOD COUNTY

Chas. Reser et al's No. 1 Hull, NW SE Sec. 2-26-9 ..... Drlg. 1,760 ft.

Reeser & Chriswell's No. 1 Wright, C SW SW Sec. 28-25-10 ..... Spudding.

Wright's No. 1 Madren, SW SE SW Sec. 29-22-12..... Machine.

Knight et al's No. 1 Moser, NE SW SW Sec. 33-22-12.. Drlg. 1,700 ft.

KINGMAN COUNTY

Garden et al's No. 1 Unknown, Sec. 11-27-7w ..... Drlg. 400 ft.

McPHERSON COUNTY

Clum et al's No. 1 Nelson, C NE NW Sec. 12-18-4w..... Spudding.

Sever and Hesman's No. 1 Scrag, S½ SE Sec. 23-19-4w.. Rig on ground.

Gaume & Maxwell's No. 1 Goering, NE SE SW Sec. 24-23-3w ..... Rig.

Investers Mineral Dev. Co.'s No. 1 Kaufman, SE Sec. 35-21-3w ..... Rig.

Roth & Farout's No. 1 Swanson, NE SW NE Sec. 13-19-3w ..... Rig.

PRATT COUNTY

Minnescah O. & G. Co.'s No. 1 Hardesty, SW SE SE Sec. 28-27-12w ..... Drlg. 4,365 ft.

RENO COUNTY

Roth & Farout's No. 1 Yoder, C NW NW Sec. 15-24-5w.. C.O. 385 ft.

RICE COUNTY

Langston et al's No. 1 Wells, NE SE Sec. 4-20-9w..... Drlg. 1,975 ft.

ROOKS COUNTY

Kruger's No. 1 Rathburn, SE NW SW Sec. 14-9-16w..... Rig.

SALINE COUNTY

Dieter, Warren and Larlo O. & G. Co.'s No. 1 Fulton, SW NW Sec. 14-16-3w ..... Drlg. 2,900 ft.

SUMNER COUNTY

Deal O. & G. Co.'s No. 1 Tompkins, SW cor. Sec. 26-33-1. Fishing 3,690 ft.

Active Drilling Program Begun at Tomball Field; Colorado County Block Is Solidly Held

By NEIL WILLIAMS
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., June 5.—A renewed active drilling development program is being started up on the Gulf Coast with the proving up of Tomball and several other new fields within the past several weeks. The next three months' period is expected to see the amount of work back to the peak reached during the height of the Conroe play when there were nearly 100 rigs running in that field alone. Wildcatting has been given a new incentive and again is picking up over the entire district and any possible let-up in the general intense blocking and leasing which has been going on seems to have been forestalled.

Since the completion of the discovery well at Tomball, northern Harris County, May 27, five additional locations have been made definitely. Magnolia Petroleum Co. already has torn down the rig and derrick of the discovery well (No. 1 Kobs, lower J. N. Hooper Survey) and has set up on No. 1 William Rudel (63-acre tract), in the Joseph House Survey, west of the townsite and about midway between the Kobs producer and the company's No. 1 Martens, which at latest report was drilling around 6,500 feet.

Humble Oil & Refining Co., which recently acquired an undivided half interest in Magnolia Petroleum Co.'s 10,000 acres at Tomball, will carry on development simultaneously and already has made locations for three operations. It is rigging up on a south offset to the discovery well on the Frits Kobs tract, J. N. Hooper Survey; is building derrick for No. 1 G. W. H. Martens in the center of a 320-acre lease in the west W. Hurd Survey, which is nearly a mile west of the discovery producer, and will begin erection of derrick shortly on No. 1 Herbert Reid, in a tract in the Chauncy Goodrich Survey adjoining to the east the Kobs lease.

Fifteen Rigs in 30 Days

It is expected that within 30 days there will be at least 15 rigs running in the district. During the past week the district has been alive with engineering and surveying crews and indications are that within the limits of consistent good drilling and production practices, an intense development program will be carried on. Humble Oil & Refining Co. and Magnolia Petroleum Co. control the bulk of the acreage in that part of the district where the discovery well is located but Stanolind Oil & Gas Co., the Texas Co., Shell Petroleum Corp., Eagle Oil Co. (C. M. Frost) and Sun Oil Co. are sitting in and around this area with substantial holdings. The majority of the acreage, however, is in small tracts which will call for considerable offset drilling and it is possible the field will spread to the townsite and to other acreage, which is pretty well diversified.

The State Railroad Commission late in the week issued an order restricting the spacing of wells of Tomball. This provides, as at Conroe and other newer fields, that a well shall be at least 466 feet from a property line and not closer than 933 feet from another well. The Tomball district, however, may necessitate many exceptions to this without pooling of some of the acreage.

The discovery well is being produced at the rate of around 5 bbls. per hour, pinched down to an eighth-inch choke. Pressure has increased to around 1,100 pounds. No pipe line connections have been made yet although several trunk lines pass through or close to the district.

Considerable interest now is being centered on H. H. Sloan's No. 1 Peden in the Brock Survey, about 6 miles east of the discovery well. Late in the week this test was drilling below 4,400 feet. It is southeast of Indian Hill Oil Co.'s No. 1 Schweinle, William White Survey, the well which started the Tomball-Huffsmith lease play when it encountered good gas showings in the Cockfield at 5,514-80 feet. It is the Cockfield which is the producing horizon of Conroe and also of the Tomball discovery well.

Dick Schwab's Good Well

Dick Schwab's No. 1 Craig, Livingston area, southern Polk County, was brought in this morning as the second oil producer and the third well for the field. A north offset to the Shell Petroleum Corp.'s No. 1 Holmes-Davis, recently completed as the first oil producer, it flowed 33 bbls. the first hour while cleaning, through a three-quarters inch choke, and looks like a 1,000-bbl. well. A total of 30 feet of 5-inch screen was set in the sand with the bottom in the Cockfield at 4,328 feet.

Refugio County

A half dozen new tests are starting up in the Greta district of Refugio County where an intensive development is expected as a result of the completion several weeks ago of a 500-bbl. wildcat producer by Greta Oil Co. (George E. Smith and associates) in the Winfield Survey. The structure, which is believed to be of fairly large extent, is in the hands of smaller independent operators who have acquired some of the acreage of the original block in small tracts.

The oil at Greta is of good lubricating stock value and in demand, being similar to the heavy oil obtained from the 3,700-foot horizon at Refugio although obtained from a different sand at 4,396-4,403 feet. Both Humble Oil & Refining Co. and Atlantic Pipe Line Co. have offered to extend their Refugio lines to the new field for the oil but the producers, who are reported to be getting a substantial premium, have turned down the offers and are moving the oil by tank car.

The field and drilling development is right on the right of way of the St. L. & B. M. Railroad (Missouri Pacific). It is 9 miles north of Refugio and 4 miles north of the Fox Field.

Colorado County

Plymouth Oil Co.'s No. 1 Ream, L&G. N. Survey No. 47, Garwood district, southern Colorado County, completed early the past week as the county's first oil producer, is standing shut in with a pressure of 1,100 pounds on the tubing and 2,000 pounds on the casing. This well flowed 344 bbls. in the first 20 hours from sand at a total depth of 6,203 feet. Location is over a mile southwest of Coyle-Concord Oil Co. and Humble Oil & Refining Co.'s wet gasser completed by the former company last year and which until now has been the only production of any kind in the county, it being 40 miles from any other field. The gasser is in a sand at a total depth of 4,052 feet.

Completion of this well, however, will not necessitate any drilling activity, although it has revived interest in further wildcat exploration and leasing in Colorado County and northern Wharton County and that part of the Gulf Coast. The well is in a 4,000-acre block, originally a part of Coyle-Concord Oil Co.'s holdings. The block, as well as that owned by Coyle-Concord and Humble, is held solidly in large ownerships. Humble Oil & Refining Co.'s No. 1 McLane, L&G.N. Survey No. 42, northwest of the discovery gasser and the first of a series of exploratory tests to be drilled by that company on the Coyle-Concord block, is down 6,277 feet.

Wharton County

Pure Oil Co. has succeeded in having its drilling obligations at Louise, western Wharton County, reduced from 15 to 7 tests, but these will have to be started shortly, or as soon as the company complete its No. 1 Stewart, the first test on the geophysical prospect, now drilling. The company's obligations on the block, leased several years ago, called for the drilling of 15 tests upon the completion of a producing well. The present test has encountered a number of sands and in one a drill stem test at 5,963-71 feet indicated a good well could have been made. In view of the drilling program required, the hole has been drilling deeper as an exploratory test of lower sand possibilities but will be plugged back to the other sand if nothing better is found. It now is down 7,075 feet.

New Developments at Mykawa

A new development program also is to be started at Mykawa, south of Houston, as a result of a deal which has just been consummated between H. C. Cockburn and his associates and T. H. Coffelt of Houston and F. E. Frederick of Pennsylvania. In the transaction, the latter two operators have been assigned a 200-acre lease on the southeast side of the field on which a test will be started by July 1 with a second to be started within 90 days after the completion or abandonment of the first. In event of production drilling must be continued until the tract is developed one well to each 10 acres.

Mykawa is a geophysical salt dome prospect worked and blocked in 1928 by Mr. Cockburn. It originally was turned to Humble Oil & Refining Co. which carried on the initial development. After drilling a number of deep tests and obtaining only some small production, the Humble turned the block back to Mr. Cockburn, who later released a portion of the prospect to Crown Central Petroleum Corp. The latter has worked over several old wells drilled by Humble and has put down several additional tests and has obtained some fair production. As a whole development has not been entirely satisfactory but most of the work has been localized around the southwest side.

Conroe

While drilling generally over the coast has been picking up, Conroe experienced further slackening of operations. The acreage of many of the operators has been drilled up while other work is being confined largely to necessary offsets. This was reflected in a sharp drop in number of completions. The unit allowable was revised again June 1 to provide for a maximum output per unit of 144 bbls. daily. This was a reduction of 10 bbls. from the allowable of the previous period and was based on a 20-bbl. flat allowance per well with an additional 6.2 bbls. per acre. The order included not only wells in the main Conroe sand but also those in the Upper Cockfield. Wells in the latter sand previously had been exempt from production restrictions on the grounds that the sand constituted a separate field not subject to regulation until the daily output reached 10,000 bbls. Acting on testimony presented at a recent hearing the commission has ruled that although the sands are separate they are producing from a common reservoir.

East Hackberry Dome

Calcasieu Oil Co.'s No. 2 Hanszen, a semiwildcat on the northwest side of the East Hackberry Dome, Cameron Parish, Louisiana, has cored a sand showing oil at a total depth of 6,076 feet and has cemented a string of 6⅝-inch casing at 6,064 feet. This test is 400 feet west and 200 feet south of No. 1 Hanszen, a joint test drilled by Calcasieu Oil Co., Gulf Refining Co. and Union Sulphur Co., which was completed recently as a gas well spraying oil from a sand at a total depth of 5,971 feet.

Cameron Meadows

Burton-Sutton Oil Co.'s No. 1 School Land, a north extension test for the Cameron Meadows Field, southern Cameron Parish, has proved disappointing and probably will be deepened. It is flowing approximately 40 bbls. of fluid of which 99 per cent is b.s., through a quarter-inch choke. It, however, shows a pres-

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Gulf Coast Fields and Wildcats

Week Ending June 3

RACCOON BEND—AUSTIN COUNTY

Company, farm and location—	Remarks:
Goodnight and Donald Oil Co.'s No. 1 Deltrich, Thos. Bell Sur., 200 ft. SE Flannagan et al's No. 1 Deltrich	Drlg. sandy shale showing oil 3,633 ft.

DAMON MOUND—BRAZORIA COUNTY

Sinclair Prairie Oil Co.'s No. 31-A Bryan, 155 ft. N, 45 deg. E of SW cor. of Blk. 28, Masterson Subd., and 140 ft. S, 45 deg. E, A. Darst Sur.	T.D. 7,536 ft; no report.

MANVEL—BRAZORIA COUNTY

Alpha Oil Co.'s No. 1 Patterson, H. N. Little Sur., 150 ft. out of S cor. of 10-ac. tract (Lot 40)	Drlg. shale 5,306 ft.
The Texas Co.'s No. 1-B Belcher, H. N. Little Sur., 300 ft. out of N cor. of "B" lease	Drlg. shale and lime 4,640 ft.
The Texas Co.'s No. 2 Davis, 300 ft. out of S cor. Lot 42, H. N. Little Sur.	Derrick.
The Texas Co.'s No. 3 Ewing, H. N. Little Sur., 250 ft. from E line, 400 ft. from S line of Lot 39	Drlg. clay 140 ft.

BARBERS HILL—CHAMBERS COUNTY

Mills Bennett Prod. Co.'s No. 8-A "B" Wilburn (D.D.), Henry Griffith Sur.	Comp. oil well; T.D. 5,063 ft.
Mills Bennett Prod. Co.'s No. 8-A "A" Wilburn (W.O.), Henry Griffith League	Rigging up to deepen 5,332 ft.
Humble O. & R. Co.'s No. 2 Kirby (W.O.), Henry Griffith League	Drlg. shale 4,242 ft.
Sinclair Prairie Oil Co.'s No. 10 Wilburn (D.D.), Wm. Hodges Sur.	Coring sand showing oil 5,128 ft; top 5,097 ft.
Sun Oil Co.'s No. 16 Wilburn, Henry Griffith League, 150 ft. W of No. 14 and 50 ft. N of S line	Drill pipe stuck 5,330 ft.

(Continued on Page 00)

Converse Pool in Louisiana Extended as Other Completions Create Excitement in District

By D. H. BANCROFT
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., June 5.—A wildcat extending Converse, Sabine Parish, Louisiana, proven territory approximately 2½ miles south, a well in Converse Townsite and an 800-bbl. producer in Zwolle made the last week the most exciting in this territory for the past two or three months. The extension well was R. L. Gay's No. 3 Long-Bell Lumber Co., SE cor. NE NE Section 5-8-13, Sabine Parish, which came in flowing 175 bbls. daily from 1,831 feet, normal depth for previous Converse wells which are producing from chalk. With six wells in the embryo field producing around 500 bbls. daily and no outlet for it, persons interested are wondering when and by whom a pipe line or a gathering system leading to a loading rack will be built.

About the time Gay's well was completed A. C. Scott's No. 1 Burckett, SE cor. NW SW Section 10-9-13, the Converse Townsite well, was brought in flowing an estimated 100 bbls. from 1,850 feet and Service Drilling & Royalties Co.'s No. 4 E. E. Smith, SW SW Section 7-7-10, Zwolle proven area of Sabine Parish, was completed flowing 800 bbls. from a crack in the chalk at 2,640 feet.

Ten Other Completions

Besides these three outstanding wells there were 10 other completions in the territory, all in Louisiana. One of these was a gasser and the others failures one of which was an abandoned location on which derrick was up. E. B. Williams and others' No. 1 Allen heirs, SE SW Section 11-18-11, Bossier Parish, was abandoned at 502 feet. Nick Barbare's No. 1 Sharpe, NE NW Section 10-18-16, Blanchard gas district of Caddo Parish, was completed making an estimated 3,000,000 feet of gas from 2,744 feet. Lamo Oil & Gas Corp.'s No. 1 T. J. Fleming, NW NW Section 31-12-13, DeSoto Parish, was abandoned after making 300 feet of hole. J. E. Bundy's No. 1 Walker, SE NW Section 11-18-10, Webster Parish, 8 miles southwest of Minden, is an abandoned location, and R. E. L. Silvey abandoned No. 1 Drake estate, NE NW Section 14-19-10, 12 miles south of Cotton Valley production and as far east of the old Bellevue shallow pool in Bossier Parish, at 4,044 feet, as a junked hole after testing a show of oi and gas in 8 feet of sand at 2,816-24 feet.

In Sabine Parish, aside from the three feature wells of the week, Graham Production Co. abandoned No. 1 Lites, SE SW Section 28-8-11, Zwolle district, at 2,700 feet as a dry hole. Loring Oil Co.'s No. 1 W. M. Cooper, SE NW Section 36-8-12, Zwolle, was dry and abandoned at 2,550 feet. T. B. Carpenter and others' No. 1 Cutrer, NW SE Section 13-7-11, Zwolle, was dry at 2,671 feet. Otis A. Roberts' No. 1 Sabine Lumber Co., SW NE Section 5-7-13, was dry at 2,500 feet and Roberts & Sledge's No. 2 Sabine Lumber Co., SW SE same section, was a failure at 2,480 feet.

Only two new locations were listed during the week, G. C. Huff, Inc.'s No. 1 J. J. Pressley, SW SE Section 2-3n-12, Sabine Parish, and Carruth and others in SW SE Section 26-12-12, Sabine Parish (complete description lacking). The Hoff location is for a 2,500-foot test for the Urania (LaSalle Parish) pay on a block of 18,000 acres, 3,800 acres of which are on the Vernon Parish side of the Vernon-Sabine line.

NORTH LOUISIANA

Following the success of acid treatment on gas wells in the Panola-Harrison County gas field of East Texas, the same process has been applied to old wells in the Monroe, La., Field whose production had fallen under the continuous pull that area is subjected to in supplying fuel to hundreds of communities in seven states. Good results were obtained and it is understood that acid will be applied to 36 of its wells by one producing concern alone.

O. G. Collins and others of Shreveport have completed a block of 18,000 acres centering on Section 41-21-12, East Carroll Parish, on which there is a drilling obligation to start a 3,000-foot test not later than September 1. Geological report carries the recommendation of Dr. A. F. Crider and Dr. J. Y. Snyder, and location is approximately 15 to 20 miles southeast of gas developed in East Carroll and West Carroll Parishes three years ago by the United Gas Public Service Co.

After months of idleness, Beaver Petroleum Co.'s No. 1 Long-Bell Lumber Co. in the NW NW Section 34-2s-8, Beauregard Parish, has started making hole again and on last report was drilling at 2,025 feet with top of the lime at 1,765 feet. It is one of the several tests drilling and to be drilled in the area embraced within the Conroe-Jackson trend. Sedberry and others' (formerly Granver Oil Co.'s) No. 1 Lawhon, NE SE Section 15-16-8, Bienville Parish, is drilling below 1,000 feet. There are rumors of a series of four 3,500-foot wells to be drilled on a big block south of this location in Bienville but by whom isn't definitely known.

In Bossier Parish, H. I. Morgan's No. 2 Smith, on the south flank of the Bellevue Dome, cemented 6⅝-inch at 3,950 feet, total depth 4,000 feet. A. W. Phillips' No. 1 Oden, NW NW Section 4-8-13, designed for a 3,000-foot test, was pulling casing but whether to abandon or to test a show at around 1,300 feet, is not stated. Location is 6 miles northeast of Shreveport. Greer and others got the base of the Jackson (Urania pay) at 907 feet on No. 1 Louisiana Central Lumber Co., Section 2-9-6, Catahoula Parish, in the Conroe-Jackson trend, and were drilling sandy shale at 1,208 feet.

Haynesville partnership's deep test in Haynesville proven territory of Claiborne Parish, No. 1 J. L. Garrett, NW SW Section 24-23-8, was drilling at 4,120 feet with reports of salt water in the Woodbine topped at 3,195 feet. This is not necessarily a discouraging development since there is plenty of room and favorable geology plus a five or six-year-old producer 2 or 3 miles northwest that started off with 30 bbls. from around 4,300 feet and is still pumping at that rate, and the present well is scheduled to go to 4,700 feet. United Gas Public Service Co.'s No. 1 Temple, Section 21-23-7, Claiborne Parish, 3 miles east of Haynesville, was coring at 4,704 feet with nothing having shown that would lead to hopes for a producer of either gas or oil. Their No. 1 Meadows, Section 13-21-5, Claiborne Parish, was drilling at 5,561 feet with something less than 2,000 feet to go before completing the new reported 7,000-foot test.

E. T. Oakes' No. 1 Bryan, NE NW Section 30-13-15 DeSoto Parish, reported to have 20 feet of a fairly well saturated sand at 4,640-60 feet (corrected depth), is still an unknown factor arranging to set a string of 6-inch to test. This is one of the most remarkable deep wells yet drilled in this territory since, without anything but 80 feet of surface pipe in the hole, it has been drilled to its present depth with little grief and, so far as known, without using acid bottle or other straight hole surveying instruments. Jack Whitson's No. 2 Sanders, Section 19-11-13 DeSoto, has a fishing job for drill stem, total depth 2,782 feet. Edwards & Clay's No. 1 Louisiana Pecan Orchard Co., Section 27-13-11, Red River Parish, cemented 6-inch at 2,451 feet to test 11 feet of sand at 2,457-68 feet that made a show of oil with a little gas, got nothing and was drilling below 2,470 feet in shale.

Three Sabine Parish wildcats were more or less interesting. Cameron Oil Co.'s No. 1 Martines, SW SW Section 2-7-13, cemented 6-inch at 2,022 feet, total depth 2,064 feet. Langley and others' No. 1 Peavy-Wilson Lumber Co., Section 16-5-9, was drilling at 1,720 feet. Roy Raines' No. 1 Beaird, SW SE Section 8-8-10, was coring black shale at 2,177 feet.

In the Converse area of Sabine Parish, aside from the two new producers referred to, other wells were holding attention. Chief Oil Co.'s No. 1 Bowman-Hicks, NW NW Section 36-9-14, southwest of production, was drilling at 2,980 feet, evidently off structure since it has made no reported show from the chalk at around 1,800 feet. Mamie Hammonds' No. 1 Patrick heirs, Section 1-9-13, 3 or 4 miles northeast of production, was reaming at 2,130 feet, total depth 2,140 feet; also apparently off structure since chalk topped at 1,592 feet with the base at 2,135 feet failed to produce. Lambert and others' No. 1 Edwards, SW NW Section 29-9-13, also is apparently a failure unless it gets the deep gas tapped by Sandfield Oil & Gas Co. at 3,400 feet in No. 1 Bowman-Hicks, Section 26-9-13, since it is drilling at 3,274 feet with shows of oil that tested dry at 1,600 feet, 1,948 feet, 1,971 feet and 2,046 feet. H. C. Lessenger has a fish in the hole on No. 1 Bowman-Hicks, NW SW Section 13-9-13, with drill stem lost, total depth 2,065 feet. Sabine Production Co.'s No. 1 Whiting Corp., SW SW Section 4-9-13, 1½ miles northwest of the A. C. Scott producer referred to, is down 3,012 feet and probably will set a string of 6-inch.

Arkansas-East Texas Border

Little news came out of Arkansas and the Texas border counties and none from Mississippi. In Miller County, Arkansas, Fitzwater and others' No. 1 Norsen, SE SW Section 20-15-27, northwest of the center of activity, was coring at 2,922 feet. Sam Riggs' No. 1 Boyce, SW NE Section 12-15-27, was drilling at 1,120 feet.

Two wells in Shelby County, Texas, that have been inactive for months came back to life. General Minerals Corp.'s No. 2 Pickering, D. H. Haight Survey, drilled plug from 6-inch at 4,416 feet and tested dry; perforated casing without results and cut casing at 3,940 feet to pull to test at 3,850 feet and higher levels wherever they got a show on the way down and now have a fishing job on their hands. Oil News Publishing Co.'s No. 1 Pickering, G. H. Patterson Survey, 7 miles south of the General Minerals Corp.'s well, is setting a string of 6-inch at around 3,200 feet to test a sand from which Gulf Refining Co. got a small producer 1,000 feet east, in 1928.

Due mostly to an 1,100 drop in runs from the Zwolle Field in Sabine Parish, Louisiana, daily average runs from the field for the district fell off 1,355 bbls. of which 1,300 bbls. were in Louisiana and 55 bbls. in Arkansas. Runs from the several pools were:

NORTH LOUISIANA

	Bbbls.
Caddo light	4,940
Caddo heavy	1,530
Cotton Valley	630
DeSoto-Red River	1,625
Elm Grove	300
Haynesville	3,920
Holly	210
Homer	2,685
Pleasant Hill	240
Sarepta-Cartersville	710
Urania	1,425
Zwolle	6,890
Total	25,105
Last week	26,405
Decrease	1,300

ARKANSAS

Champagnolle	1,380
El Dorado	2,645
Lisbon	415
Miller County	75
Nevada County	420
Smackover light	2,570
Smackover heavy	21,785
Stephens	150
Urbana	435
Total	29,875
Last week	29,930
Decrease	55
Both states	54,980
Last week	56,335
Decrease	1,355

Wildcat Operations in Louisiana-Arkansas

(Rotary operations unless otherwise designated)

North Louisiana

AVOYELLES PARISH

Company, well, farm name, section and block— Remarks:

Bud Harrell et al's No. 1 Haas, 330 ft. N and W, SE cor. SW SW Sec. 9-1s-3e ..... Derrick.

BOSSIER PARISH

Cryer Oil Co.'s No. 1 fee, 2,400 ft. N, 1,650 ft. E. SW cor. Sec. 25-19-12 ..... Cmtd. 6-in. csg. 852 ft; drilled plug; W.O.

A. W. Phillips, tr.'s No. 1 Oden, 300 ft. W, 150 ft. N, SE cor. NW NW Sec. 4-18-13 ..... Set 6-in. with packer 1,607 ft.; bailed dry 1,714 ft; pulling csg.

B. A. Sherrell, tr.'s No. 1 fee, NE NW NW Sec. 18-19-11.. Derrick.

CADDO PARISH

Nelson Oil Corp.'s No. 1 Taylor, 200 ft. N, 300 ft. E, SW cor. Sec. 13-18-14 ..... Reaming 3,633 ft.

CLAIBORNE PARISH

United Gas Public Service Co.'s No. 1 Meadows, approximately 100 ft. S, center E½ E½ Sec. 13-21-5... Drlg. 5,561 ft.

United Gas Public Service Co.'s No. 1 Temple, 1,340 ft. W, 660 ft. N, SE cor. Sec. 21-23-7 ..... Coring 4,764 ft.

DESOTO PARISH

Bailey Gantz et al's No. 1 Jenkins, NW cor. SE SW Sec. 25-12-12 ..... Waiting for csg.; T.D. 3,100 ft.

(Continued on Page 66)

New Well in Riddle Pool, Bastrop County, Texas, Makes 72 Bbls. Hour; Many New Locations

By B. D. STEVENSON
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex., June 5.—Marts & Beavens' No. 2 Riddle in the southern part of Bastrop County at 2,149 feet in broken Serpentine and chalk came in producing on gauge 72 bbls. an hour for the first three hours and was reduced on account of lack of storage and connections. It is the biggest well thus far completed in the Riddle Pool, which is several miles south of the Hilbig Pool of the Humble Oil & Refining Co. in Bastrop County.

The Riddle Pool consists of only a few producers, all of them small till Witherspoon brought in a 200-bbl. well on the east side of the field. The Marts & Beavens' No. 2 Riddle is 400 feet southwest of the Witherspoon well and between his well and the field. There seems to be some little question as to the formation it is coming from but it went into Serpentine. The best wells in the Hilbig Pool were not any bigger than this new producer in the Riddle Field.

The new Bastrop County producer was the most exciting occurrence in Southwest Texas the past week. Other than it the most important item is the announcement of another flock of 35 new locations, equal to the number the week before and the largest number that has been reported in one week in Southwest Texas for many months. The new tests are scattered over the entire district though four especially important new deals are four locations announced by the Peerless Oil & Gas Co. in the Edwards Plateau, three of them in Real County and one in Bandera County.

District Getting Attention

The new producer in southern Bastrop County is sufficient to attract a lot of attention to that district. The Humble recently brought in the Hilbig Pool about 9 miles northeast of the Dale Field in Caldwell County and Marts & Beavens' No. 2 Riddle is about 3 miles northeast of Dale. Running southwest from Dale is the Buchanan, Webster, Branyon and then the old Luling Field, from the Hilbig Pool in Bastrop to the southwest end of the old Luling Field in Guadalupe being about 30 miles. The Luling Field producing from the Edwards, the Branyon and Webster wells producing from crevice in chalk, the Buchanan and Dale Fields from broken lime and Serpentine, the new Marts & Beavens well from broken lime and Serpentine and the Hilbig from Serpentine. While the northeast end of the chain of pools is mainly Serpentine there is possibility that the Luling fault extension has some influence.

Cargill, who drilled No. 1 Damereau in the Dillard Cooper Survey in Caldwell County late last year and at 2,018 feet got a small well located about a half mile northeast of the Branyon well, is now starting No. 1 Brown about 3,000 feet from the Branyon well and more to the east than No. 1 Damereau. It is about 2½ miles southwest of the Webster crevice well on the McCrory land.

Any test drilled around that part of the country is considered important since being on an extension of the Luling fault there is a chance of someone going into production in the Edwards and opening another pool. Webster has made no move since the completion of his McCrory but a test a little to the northeast recently completed and the Gargill well to the southwest have helped to work out the geology and some further effort is likely soon to open an Edwards lime pool there.

Edwards Plateau Activity

Peerless Oil & Gas Co.'s announcement of four locations in the southwestern part of the Edwards Plateau is understood to mean that the tests will be drilled one at a time but in connection with the Phillips Petroleum Co.'s activity in northern Schleicher County and the Eastland Oil Co. drilling the No. 5-D on the Love ranch in southwestern Kerr County, now thought to be in top of the Pennsylvania at 1,410 feet, and J. E. Anderson in the Pennsylvania in the No. 1 Witt in southwestern Kerr and further activity in northeastern Crockett, it makes quite a circle of tests drilling in a territory that is thought to have considerable possibilities.

Peerless Oil & Gas Co.'s No. 1 J. B. Smallwood is in southwestern Bandera County, 10 miles northeast of Utopia in Uvalde County, and about 6 miles southeast of where Humble drilled some years ago in western Bandera.

The other three tests are all in Real County, which is next west of Bandera, No. 1 A. G. Morris being in Section 42 of the J. M. Howell Survey near the north line of the county, No. 1 Wayne D. Payne in Section 6 of the D. B. Payne Survey 5 miles northwest of Leakey, and No. 1 L. K. Guthrie in Section 5 of the G.T.&S.F. Railway Survey in the northwest corner of Real County.

Laredo Territory Pipe Line

Moca Duval Pipe Line Co. is to build at once a 4-inch pipe line from the Moca Field in northeastern Webb County southeast a distance of about 40 miles to the town of Gravis on the Texas-Mexican Railroad, a point between San Diego on the northeast and Benavides on the southwest. This will give the field its first outlet. It is understood that George B. Eggleston, who owns oil terminal facilities at Corpus Christi on the docks there is a principal factor in the Moca Duval Pipe Line Co. and will handle the oil. As yet this field consists of only a few wells at total depth of slightly over 900 feet, but indications are the fied will be of sufficient size to furnish considerable oil. The field is almost directly due west, a distance of about 10 miles from the original Government Wells Field in Duval County. It is understood that announcement will follow soon of further development of the Moca Field.

Other than wildcat activity operations in the Laredo territory are at an extreme minimum, the lowest in many long months. Each week one or two producers are completed in the North Government Wells Field and the Texas Co. is occasionally completing a test in the Cerrito Blanco grant in the Escobas Pool in Zapata County and there is a little drilling in the Laurel Field in Webb County.

Wildcat Operations in Southwest Texas

Week Ending June 3

ATASCOSA COUNTY

Company, farm and location—	Remarks:
A. Blume's No. 1 Shaw, 690 ft. from N line, 1,780 ft. from E line of 100-ac. tract in W. Farquhar Sur. No. 275	T.D. 1,619 ft; set csg.
E. C. Burton's No. 1 Smith-Mowinkle, 2,100 ft. from N line, 200 ft. from W line of F. Perez Sur. No. 172.	Rigging up.
O. W. Killiam's No. 1 Seitz, 1,700 ft. from NE line, 4,150 ft. from NW line of Cruz Landin Sur. No. 45.	T.D. 2,528 ft; S.D.
BASTROP COUNTY	
J. E. Emanuel's No. 1 H. Klemm, 317 ft. from W line, 300 ft. from S line of tract in R. A. Teal Sur	T.D. 263 ft; standing.
Johnson & Mattox's No. 1 Harris, 150 ft. from NW line, 3,000 ft. from SW line of John Maxmilian Sur.	T.D. 512 ft; drlg.
Johnson et al's No. 1 Pendergrass, 1,343 ft. from NE, 310 ft. from SE line of 130-ac. tract in Henry Warnell Sur.	Derrick.
BEXAR COUNTY	
C. I. Albertson's No. 1 Vogt, 2,100 ft. from N line, 240 ft. from E line of 237-ac. tract in Sec. 2 of S. McCollough Sur. No. 53	T.D. 906 ft.; set csg.
Wm. V. Ballard's No. 1-A San Antonio Land & Dev. Co., 1,000 ft. from N line, 450 ft. from W line of tract in I. Perez Sur.	T.D. 1,154 ft; abd.
O. N. Beer's No. 1 S. W. Kearney, 150 ft. from S and E lines of 38-ac. tract in S. C. I. Perez Sur.	T.D. 788 ft; drlg.
R. S. Boling's No. 1 J. J. Appelt, 150 ft. from N and W lines of tract in M. Uriegas Sur.	T.D. 830 ft; setting csg.
E. R. Byrd's No. 1 W. H. Russell, 750 varas from NE line, 54 varas from NW line of Fernandes Rodrigues Sur.	T.D. 1,340 ft; drlg. Buda lime.
Austin Hull's No. 1 Classen, 268 ft. from W line, 2,500 ft. from S line of tract, 13 miles N of San Antonio.	T.D. 1,810 ft; drlg.
LaSalle Oil Co.'s No. 1 City Sewage farm, 150 ft. S of Rilling Road, 460 ft. W of NE cor. of tract in D. Bustillos Sur.	T.D. 40 ft; moving in rotary.
Motes-Campbell's No. 1 Pruitt, 550 ft. NE of Trussell's No. 1 Pruitt, 54 varas from E line of tract in Samuel McCollough Sur.	T.D. 1,065 ft; abd; skidding derrick.
O. L. Ray's No. 1 Thos. Dillon, 2,500 feet from NW line, 1,750 ft. from most southerly SW line of de Luna grant in southern part of county	T.D. 680 ft; standing.
J. Morgan Russell's No. 2 Brotze, 200 ft. W of No. 1, in Cordenas Sur.	T.D. 340 ft.; drlg.
Earl S. Post's No. 1 Bilharts, 1,365 ft. from W line, 2,149 ft. from S line of 385-ac. tract in F. Rolen Sur. No. 48	T.D. 784 ft; milling csg.
A. C. Smith's No. 1 Lamb	Spudded in and S.D. for heavier rig.
Tipton's No. 1 Gembler, 514 ft. from W line, 616 ft. from N line of 130-ac. tract in M. Getari Sur.	Spudded in.
Milo Trussell's No. 1 K. K. Harring, in J. Cantu Sur.	T.D. 1,350 ft; abd.
BLANCO COUNTY	
Blanco Development Co.'s (McGee) No. 1 A. J. Dittmar, 1,320 ft. from S line, 150 ft. from W line of George Evans Sur. No. 58, 4 miles NW of Johnson City	T.D. 215 ft; drlg.
H. T. McGee's No. 1 Glasscock, center Sur. 167	T.D. 1,580 ft; abd; lost hole.

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Nothing of any importance is being added in new production from new flush fields.

DeSoto Oil Co.'s (Coronado) No. 1 Wood-Welder in Survey 211, about 3 miles northeast of nearest production in the North Government Wells Pool and about 1 mile east of a small well completed by the Sun Oil Co. in Survey No. 78, has been getting some sands at around the depth where it should pick up the Government Wells sand. One sand at 2,125-30 feet failed to produce but late in the week it was testing another at 2,208 feet. Sun got a small well at a little shallower depth. The next few days should tell finally as to the DeSoto.

An entirely new list of wildcats is now getting started in northern Duval and southern McMullen Counties, but not far enough along yet, except that the S.R.C. and Sinclair-Prairie's No. 2 LaChusa in southern McMullen is down around 1,800 feet and this week may be sending in some important reports. One new wildcat is added to the list. Boysen & Hotchkin are to drill on the G. Kinney Survey No. 8, 10 miles north and slightly east of the North Government Wells Field.

In the Shasta's Peters Pool, three tests are being started, one in the pool, one 2 miles northeast and the other 1 mile southwest that will probably help to find out what the possibilities of that district are. The pool as yet consists of two gas wells and one abandoned test. Shasta is starting the No. 4 Peters and Brooklyn Oil Co. is starting the No. 1 Sutherland in Survey No. 187, 2 miles northeast and Windsor Oil Co. the No. 1 Peters in Survey 33, 1 mile southwest. None is far advanced.

New McMullen Pool

Jacob, Buzzini & Pickett's No. 1 Griffith, 3 miles northeast of the Jacob Pool in northeastern McMullen County in sand at 927 feet is swabbing about 75 bbls. of oil a day through tubing and looks like the opening of a new pool, rather than an extension of the Jacob Pool, though producing at the same depth. The production from the Jacob Pool is being sold for export to France. It has been a very profitable pool though only about a dozen producers have been drilled up to this time.

Saxet Field

C.N.T. Oil Co.'s No. 1 Vance, in the Saxet Field in Nueces County, is shut down at 5,012 feet and the Gulf Port Oil Co.'s No. 3 Humphreys is drilling below 5,006 feet, both having passed the 4,800-foot sand without getting production. Houston Oil Co. has completed No. 1 McGregor in the north part of the field at 4,874 feet for an oil well but not gauged. This leaves the field almost barren of activity. Holliday, who completed his No. 2 Smith at 4,874 feet as a gas well, twice, is working with it again.

For a time it looked as though the 4,800-foot sand in this field might be a big oil producer but it seems to have been proven that it is not a blanket sand and rather discourages expectations of any big volume of production.

North Pettus Pool

Gulf Coast Oil Co. has made location for its No. 8 R. A. McKinney in Karnes County an east offset to the Magnolia Petroleum Co.'s No. 1 Porter which was recently brought in extending the field across the county line from Bee County. The field as yet consists of only a few producers and no effort has been made to extend it till recently and there are no dry holes to indicate any limits except one close at hand on the south and one a mile away on the north.

Kenda Warns Los Angeles Operators to Curb; Immediate Corrective Steps Are Necessary

By L. P. STOCKMAN
Staff Correspondent, California Fields

LOS ANGELES, Calif., June 3.—California operators are faced with the necessity of undertaking immediate corrective measures to preserve the curtailment program. A month or so ago the Oil Producers Sales Agency endeavored to start the ball rolling but encountered opposition to the proposed setup as the curtailment committee would have included representatives of the irreconcilables and would have resulted in friction. A number of operators took the position that since the irreconcilable group did not subscribe to curtailment it would be incongruous to put them in a position to pass judgment upon those who have been strictly adhering to the proration program.

The situation was brought to a head early this week by the Kettleman North Dome Association which tacitly served notice that Kettleman Hills operators would not continue indefinitely to sit idly by and permit operators in other fields to disregard curtailment obligations. William Reinhardt, general manager of the Kettleman North Dome Association, addressed a letter to H. P. Grimm, chairman of the curtailment committee, in which he said that "postponement of the meeting of your committee called for May 14, with no advance date set for a subsequent meeting, has so concerned the directors of the Kettleman North Association that they have instructed me to address this communication to your committee in order that you may be advised of the situation in the Kettleman North Dome Field, which has now become so acute as to jeopardize the whole curtailment picture in that field.

Kettleman Hills Development

"A review of the history of Kettleman Hills development indicates that during the five years since discovery of the field in 1928 only 47 wells have been drilled and completed on production. This small amount of development in the largest field in the state was due primarily to the formation of the Kettleman North Dome Association, which is acting in co-operation with the Standard Oil Co. in the development and division of allowable production on an acreage basis. The Secretary of the Interior and the state oil and gas supervisor sponsored and approved the formation of the association and its co-operation with the Standard Oil Co. as a conservation measure, but several operators on relatively small tracts refused to join the association.

"These operators control only 4 per cent of the total productive acreage in the field but their votes on the field committee, before its reorganization, were able to overcome the one vote of Kenda, which is merely an operating contractor for the 13 separate member companies, and the one of the Standard Oil Co., which owns nearly one-half of the productive acreage in the field. As a result, this committee, controlled by 4 per cent of the acreage interests in the field, had set up an allowable for themselves equal to 25 per cent of the total allowable for the field. The advisory committee of this association had previously advised you of its willingness to agree to produce only its acreage share of 50,000 bbls. per day in co-operation with the Standard Oil Co. and for you to distribute among these nonmember producers 5,000 bbls. daily allowable over and above their normal acreage share of 50,000 bbls. daily.

"The failure of Los Angeles Basin fields to observe curtailment and meet the allowable already in force is a matter of record, but in the face of this failure the executive committee proposed to again reduce Kettleman Hills without any reduction in the Basin and have the Kettleman North Dome Association bear the brunt of curtailment. This proposal was protested both before your committee and the recently reorganized Kettleman Field Committee, and as a result of these protests the field committee re-established the old 60,000 bbls. per day allowable for the North Dome Field, prorated 48,000 bbls. to the Kettleman North Dome Association and the Standard Oil Co. and 12,000 bbls. per day to the outside operators. Some of the outside operators have failed to meet the allowables established by the umpire on the basis of the above schedule and have openly stated that they had no intention of doing so. The association is therefore faced with the absolute necessity of protecting its drainage position, especially in the Huffman area, both from the point of view of protection for its own position and also for the protection of its leasehold rights under the U. S. Government leases. This drainage protection can only be obtained by an increase in the association's production, which increase would involve a substantially larger barrelage of oil than is allocated to the association under the umpire's present set-up.

"The board of directors of the association would be very reluctant indeed to be forced to increase its present production without first having given your committee an opportunity to establish and obtain a reasonable and fair allocation of the field's allowable as this would obviously jeopardize the whole curtailment situation in the North Dome of Kettleman Hills, and possibly in the entire state of California. The board has therefore instructed me to advise you that unless some immediate steps can be taken to obtain the consent of the various outside operators to the allocation of production as established by the last meeting of the Kettleman Field Committee, and to reduce the production of these operators to that basis, the association will be forced to follow the example set by the outside operators and so conduct its operations, both as to areas under production and amounts of production, as will in the association's opinion properly protect its properties."

Potential Down

California's potential daily production was reduced on June 1 from 1,046,700 bbls. to 1,030,800 bbls., a decrease of 15,900 bbls. per day. One of the most interesting features in connection with the revision in the potential daily production of the state is that for June the allowable was stepped up from 446,000 bbls. to 450,000 bbls. per day. Most of this increase was recorded in Los Angeles Basin fields as districts in the San Joaquin Valley were given an additional allowable of only 500 bbls. per day and no change made in the Coastal fields. Due to the completion of several substantial producers in the Dominguez and Huntington Beach Fields, the potential of these districts was increased 3,400 bbls. and 4,525 bbls. per day respectively. The allowable daily production of Dominguez remained unchanged at 18,000 bbls., but the daily quota of Huntington Beach was stepped up from 22,500 bbls. to 26,000 bbls., a net increase of 3,500 bbls. daily.

Potential daily production of the Kettleman North Dome Field was reduced 30,000 bbls., bringing the field's potential down from 300,000 bbls. to 270,000 bbls. The Kettleman Middle Dome and Mountain View Fields for the first time, were assigned individual potentials of 1,500 bbls. and 2,500 bbls. per day respectively. The former was given an allowable daily production of 900 bbls. and the latter, 500 bbls. per day. The Long Beach Field of Los Angeles Basin, reflecting the completion of numerous wells rather than the completion of large substantial producers, was given an increased potential of 1,625 bbls., which brought the field's potential up from 90,800 bbls. to 92,425 bbls. per day. No change was made in the allowable daily production of the field, however, as the quota remained at 57,000 bbls. per day. At the close of May, Long Beach was producing approximately 17,000 bbls. per day in excess of its allowable; Huntington Beach, 7,385 bbls.; Santa Fe Springs, 5,817 bbls., and Dominguez, 2,700 bbls. above the prescribed quota. It is probable excess production in Huntington Beach will show a substantial increase within 30 days unless steps are taken to secure more effective curtailment, as town lot development in the subdivided area adjoining the ocean front is bound to result in additional large producers. Umpire Pemberton is faced with a rather difficult problem in reducing the production of this field as each new completion increases the field's potential and must ultimately increase the district's allowable.

Huntington Beach

Approximately five wells should be completed in the Huntington Beach town lot area before the close of June, although this number may possibly be increased depending upon the success of sidetracking operations and the ability of operators to finish wells somewhere near the designated objective. The Bestmi Petroleum Corp. recently acquired No. 5 of George F. Getty, Inc., on the Stearns lease and is rigging up preparatory to redrilling and deepening. Getty's No. 7 has been acquired by Doyle & McKeon and is being redrilled at 3,280 feet. Both wells were former upper zone producers. Termo Corp. has taken over No. 1 McIntyre, originally drilled by Texas Co. to 4,406 feet, and Petrol Corp. has taken over No. 1 Lambert of Pacific Western Oil Co. at 4,379 feet. Both were originally finished as straight holes and produced from the upper zone.

It is probable injunction proceedings will be instituted to prevent Signal Oil & Gas Co. from carrying out a contract with the city of Huntington Beach to drill a number of wells on streets in the town lot area. Late last week the Signal Oil & Gas Co. acquired drilling rights from the city on Eighteenth, Nineteenth, Twentieth, Twenty-first, Twenty-second and Twenty-third Streets from Ocean Boulevard to Olive and Walnut Streets. Lawler & Degnan, attorneys for the Standard Oil Co., have announced that company is unalterably opposed to the use of streets and highways other than as public thoroughfares and contemplates opposing the lease given by the city council to the Signal company for development purposes. Based on precedent, it appears improbable any development work will be undertaken on the streets mentioned. Huntington Beach has been trying for several years to lease streets along the ocean front for development, but efforts have been thwarted in each instance. Original plans contemplated removal of derricks upon completion of development work with production activities conducted below the level of the street. Fire regulations will probably be an important factor in the decision. It is the contention of operators holding lots or acreage inside the property lines that a rig in the middle of a 54-foot street would increase the fire hazard and seriously interfere with the functioning of fire department equipment.

McVickers & Rood, backers of the Vicaroo Oil Co., the first company to develop substantial production in the area now undergoing development in Huntington Beach, have adopted a program of organizing a new company for each new well started. After completing the Vicaroo well, McVickers & Rood organized the Macroo Oil Co. and brought in No. 1 Smith flowing 3,400 bbls. of exceptionally

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	May 20		May 13			
Intercoastal-domestic—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil	.....	.....	.....	.....	78,085	.....
Fuel oil	72,225	10,318	.....	.....	663,669	.....
Diesel and gas oil	.....	.....	.....	.....	1,085,064	116,890
Gasoline	116,894	16,699	.....	.....	3,162,528	3,965,517
Kerosene	.....	.....	.....	.....	411,076	102,895
Foreign exports—						
Crude oil	273,009	39,001	5,041	720	2,913,001	3,532,529
Fuel oil	169,061	24,152	53,314	7,616	2,801,316	3,802,841
Diesel and gas oil	48,702	6,957	107,932	15,419	1,490,047	946,589
Gasoline	217,013	31,002	173,827	24,832	3,458,074	3,771,152
Kerosene	105,186	15,027	5,851	836	793,326	931,952
Naphtha distillates	.....	.....	.....	.....	.....	75,425
Coastwise-domestic—						
Crude oil	166,948	23,850	64,310	9,187	4,199,929	5,618,165
Fuel oil	80,894	11,556	230,854	47,265	3,892,775	5,432,226
Diesel and gas oil	2,005	286	31,065	4,438	555,802	635,149
Gasoline	164,713	23,530	262,788	37,398	4,832,232	6,390,588
Kerosene	1,014	145	.....	.....	82,198	75,475
Naphtha distillates	.....	.....	.....	.....	27,651	.....

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic—						
Diesel and gas oil	.....	.....	.....	.....	280,531	151,220
Gasoline	117,365	16,766	81,100	11,586	488,791	293,455
Kerosene	.....	.....	76,025	10,861	482,430	.....
Lubricants	.....	.....	.....	.....	16,400	15,834
Foreign exports—						
Crude oil	.....	.....	27,925	3,989	657,647	635,420
Fuel oil	.....	.....	.....	.....	262,511	521,589
Diesel and gas oil	.....	.....	77,590	11,072	492,179	352,107
Gasoline	.....	.....	.....	.....	1,698,388	1,580,326
Kerosene	.....	.....	.....	.....	389,233	450,493
Lubricants	.....	.....	6,650	979	26,247	24,984
Coastwise-domestic—						
Fuel oil	237,911	33,987	.....	.....	1,351,691	1,162,749
Diesel and gas oil	13,121	1,874	.....	.....	166,162	196,281
Gasoline	127,346	18,198	.....	.....	1,339,623	1,366,122
Kerosene	.....	.....	.....	.....	57,521	44,285
Lubricants	.....	.....	.....	.....	2,751	.....

clean 25.8 gravity oil per day. These operators have recently incorporated the Camroo Oil Co. and the Simaroo Oil Co., both of which are rigging up. Oscar Howard is completing preparations to redrill and deepen No. 1 Travis, bottomed at 4,390 feet. Sierra Huntington Oil Co. put No. 1 Huntington on a production test at 4,374 feet and this well, completed on a compressor with reverse flow, showed an initial of 360 bbls. of exceptionally clean 24.3 gravity oil per day. New wells spudded in at Huntington Beach include No. 2 Lewis of the Hammil Oil Co., No. 1 Severns of Rowan & Richards and the Wilshire Oil Co.'s No. 15 Huntington. Southern California Drilling Co. has topped the pay in No. 2 Severns at 3,807 feet and a string of 9-inch has been landed and cemented preparatory to an early production test.

Kettleman Hills

The North Kettleman Oil & Gas Co. has been held up with mechanical trouble in No. 1 Lillis-Welsh, the world's record well, and recovery has been rather slow. The drill pipe stuck in this deep test, bottomed at 10,947 feet, and conditions were further complicated when the shot prematurely exploded around the 9,600-foot level, leaving approximately 1,350 feet of drill pipe in the hole. Circulation was regained, however, and the company has been spotting oil for several days in an effort to remove the remaining fish. Unless an early recovery is effected the company may possibly make a production test, as the drill pipe in the bottom of the hole would serve somewhat as a liner even though not perforated. Ed McAdams has been spending practically all of his time on the rig during the past week or so, as this is the first serious mechanical trouble which has developed up to the present time.

Superior Oil Co. is preparing to run a water witch in No. 6 Huffman, which came in wet last week following completion at 9,143 feet. It is the opinion that this well presents a rather complicated problem due to the landing of alternate strings of blank and perforated pipe. No. 6 Huffman is the deepest well to be drilled in the Huffman area, in the western end of the field, approximately 1 mile east of North Kettleman Oil & Gas Co.'s No. 1 Lillis-Welsh, an outpost out beyond the blue line inclosing what has been believed to be the maximum potential acreage. The Standard also encountered water trouble in the North Dome during the past week, as No. 8-21-J swabbed clear salt water testing 1,550 grains of salt per gallon on a production test from 8,160 feet with the hole plugged back from 8,217 feet. The water trouble encountered in Superior's No. 6 Huffman and Standard's No. 8-21-J does not indicate any unusual condition or confirm the rumor prevalent from time to time that Kettleman Hills has gone to water. The California fields do not as a rule go to water over night, as is the case in fields where the accumulation of oil is in the form of a pool. Edgewater encroachment is rather slow in California fields and while bottom water may be encountered from time to time this is more or less of a mechanical condition and indicates that an operator has endeavored to take in too much formation. It will probably be a long time before the water problem becomes of any serious consequence in the Kettleman North Dome Field. Union Oil Co. is building rig for No. 4 Amerada King and rotary drilling equipment is expected to be moved in during the week.

Lost Hills-Belridge

Associated Oil Co. is making good footage in No. 1 Williamson, a deep test which the company is drilling in the Lost Hills Field of Kern County in conjunction with Richfield, but the Temblor has not yet been picked up as the company is still in hard brown shale at 4,050 feet. Associated is using a specially constructed core barrel fabricated by Baker Oil Tools Co. and has effected a maximum recovery. The outer drill barrel on this core is constructed of 13⅜-inch O.D. grade D pipe, while the inner core tube is constructed of 9-inch O.D. pipe. In the Belridge Field the Continental Oil Co. is expected to pick up the top of the Temblor within another 600 feet as No. 4 Result is nearing the 4,400-foot level. No. 1 Theta of Casa Mira Oil Co. is in brown shale just below the 2,400-foot level.

Several additional locations are expected to be staked in the Weed Patch, or Mountain View, Field of Kern County within 15 days, as Dana Hogan's No. 1 Wharton is holding up in good shape at 1,550 bbls. of clean 33.1 gravity oil and 1,750,000 feet of gas per day, indicating a substantial accumulation. Mohawk Petroleum Co. is reconditioning No. 1 Hood following a preliminary production test but has not yet returned the well to production. Treasure Oil Co. has staked location for No. 1 in the Mountain View Field approximately one location south and east from the northwest corner of Section 31-30-29. In the Sivert district southeast of Edison district of Kern County, Caravel Petroleum Co. has just passed the 1,000-foot level in No. 1.

Mount Poso

The Shell Oil Co. has completed No. 4 Security in the Mount Poso Field of Kern County and this well, finished in the second Vedder zone, was brought in on the beam pumping 866 bbls. of relatively clean 16.5 gravity oil per day. No. 4 Security was bottomed at 1,690 feet and finished with a 6⅝-inch liner carrying 108 feet of perforated and 1,518 feet of 4-inch tubing. No. 3 Glide of the Texas Co., finished last week, was shut in after establishing a potential daily production of 1,001 bbls. from the second Vedder zone at 1,754 feet. The next completion to be listed in the Mount Poso Field should be No. 3 Dominion of Federal Petroleum Co., as it has just passed the 1,600-foot level. Honolulu Consolidated has just completed No. 54 in the Midway-Sunset Field at 3,281 feet but the gauge has not been completed. In the Fruitvale Field of Kern County, N. P. Gerard and Kerneo Oil Co. are experiencing a little difficulty in completing their respective wells, as neither showed sufficient kick to result in a natural flow. Both projects are being rigged up to pump.

San Miguelito

No. 1 Valenzuela of Honolulu Consolidated Oil Co. appears to be running somewhat lower on the structure than No. 1 Grubb of Continental Oil Co., but is expected to pick up the Grubb sand at any time. Honolulu's test is on the south flank of the San Miguelito structure and the unconformity in subsurface conditions is not especially disquieting as the area appears to be rather badly faulted. Midway between Honolulu's No. 1 Valenzuela and Continental's No. 1 Grubb, the latter company is rotating in No. 2 Grubb a little below 5,950 feet. Chanslor-Canfield Midway Oil Co. is nearing the 3,600-foot level in No. 3-A Hobson. Two wells have been completed in the San Miguelito Field, although one of them, No. 1 Grubb of the Continental, showed substantial production. This well is holding at 1,140 bbls. per day, while Chanslor-Canfield Midway Oil Co.'s initial completion is pumping approximately 100 bbls. per day.

Doyle Petroleum, which is drilling a second test on the Bolsa Chica's tideland permit No. 191 in the Coal Oil Point district of Santa Barbara County, conducted a preliminary production test early in of the week, but the outcome was unfavorable and the company has resumed drilling operations. This well cored approximately 20 feet of what appeared to be a good looking oil sand but the well on the production test showed salt water and only a trace of oil. The Coal Oil Point area has intrigued several operators as the oil sand appears to show exceptional promise in the core samples. On production tests, however, the Vaqueros zone has so far failed to come up to expectations. Bolsa Chica in its original test on tideland permit No. 191 found the same favorable indications but proved negative so far as production is concerned. After several months of effort the Bolsa Chica Oil Co. suspended drilling operations and turned the prospect over to the William P. Andrews Oil Co., which was also unsuccessful in developing commercial production. The Superior drilled the initial test down into the Sespe but this formation, like the Vaqueros, proved barren. It is unfortunate that the Doyle Petroleum did not move east or west along the structure for its present test as the log in such a case would have provided additional data and permitted correlation work. It appears that tideland permit No. 191 may possibly be located on the extreme outer edge of a possible oil field. The present well, even though unsuccessful, will still leave a doubt in the minds of many operators as the showings encountered in both wells were too definite to be of minor consequence. In the Rincon Field of Ventura County, Indian Petroleum Corp. is making preparations to set a liner in No. 1 on tideland permit No. 82 at 3,455 feet preparatory to conducting an early production test.

Two fairly good wells were put on production in the Long Beach Field early in the week and several more are expected to be given production tests. J. E. O'Donnell completed No. 1 Walker flowing 758 bbls. of 25.6 gravity oil and 990,000 feet of natural gas per day from 5,408 feet after punching some holes in the 6⅝-inch around the 5,200-foot level. Dabney-Johnston Oil Corp. completed No. 25 Signal pumping 345 bbls. of 24.6 gravity oil per day after plugging back the hole from 6,600 feet to 5,420 feet and perforating the 5¾-inch casing at 4,700-5,145 feet.

NEW MEXICO BULLETIN

The State Bureau of Mines has just received from the press Bulletin 7, "The Metal Resources of New Mexico and Their Economic Features," by S. G. Lasky and T. P. Wootton, according to E. H. Wells, director of the bureau and president of the New Mexico School of Mines. The bulletin contains 178 pages and is illustrated by tables and maps showing the location of the various districts.

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Company, well and location—	S.	T.	R.	Depth	Status—
Palm Ridge Oil Co., No. 1 Palma, Los Angeles Co.	2-	2-	15	5,850	hd. sd. drilling
Baldwin Oil Co., No. 9 Inglewood, Los Angeles Co.	7-	2-	14	5,862	suspended
Kupfer, A. M., No. 1 Inglewood, Los Angeles Co.	17-	2-	14	5,853	plug bottom
Pacific Gulf, No. 1 Athens, Los Angeles Co.	19-	2-	13	6,094	suspended
Pacific Oil Inv. Co., No. 1 Wilmington, Los Angeles Co.	28-	4-	13	3,640	prod. test
Wilmington Oil Co., No. 1 Wilmington, Los Angeles Co.	28-	4-	13	3,646	fish liner
Peoples Oil & Gas Co., No. 1 Compton, Los Angeles Co.	31-	2-	13	rig	rigged up
Oakes & Mead, No. 1 Lyndwood, Los Angeles Co.	31-	2-	13	4,940	suspended
Community Oil Co., No. 1 Montebello, Los Angeles Co.	34-	1-	11	5,200	repair mach.
Universal Consd., No. 1 Montebello, Los Angeles Co.	5-	2-	11	5,990	gr. sd. drilling
Andrus & Hutcheson, No. 1 El Monte, Los Angeles Co.	11-	1-	11	1,792	suspended
Willetts Pet., No. 1 Saugus, Los Angeles Co.	35-	5-	16	2,074	circulating
Smith, J. A., No. 1 Saugus, Los Angeles Co.	32-	5-	17	3,515	suspended
Alpha Oil Co., No. 1 Calabasas, Los Angeles Co.	22-	1-	18	1,182	gr. sh. drilling
Hudson Pet., No. 1 Newhall, Los Angeles Co.	1-	3-	16	1,565	hd. sd. drilling
Ball, W. T., No. 1 Newhall, Los Angeles Co.	34-	3-	16	3,542	suspended
Big Four Oil Co., No. 1 Newhall, Los Angeles Co.	33-	4-	16	2,220	suspended
Marble, Willard, No. 1 Van Nuys, Los Angeles Co.	6-	2-	15	2,000	recemented
Nuoil Co., No. 1 Newport, Orange Co.	29-	6-	10	3,901	suspended
Mineral Exploration, No. 1 Capistrano, Orange Co.	3-	8-	7	4,302	suspended
Saddleback Oil Co., No. 1 El Toro, Orange Co.	3-	6-	7	rig	suspended
Placentia Dev. Co., No. 1 Placentia, Orange Co.	31-	3-	9	rig	rigged up
Spindletop Oil Co., No. 1 Salton Sea, Riverside Co.	25-	7-	10	3,590	suspended
Keeley, H. J., No. 1 Corona, Riverside Co.	21-	4-	6	704	hd. sd. drilling
Duncan, N. L., No. 1 Sagebrush, Riverside Co.	8-	4-	6	1,157	suspended
Great American Pet., No. 1 Chino, San Bernardino Co.	18-	2-	8	2,198	hd. sd. drilling
Great American Pet., No. 2 Chino, San Bernardino Co.	18-	2-	8	rig	suspended
McCarthy, C. F., No. 1 Chino, San Bernardino Co.	14-	2-	6	rig	portable rct.
Mason Oil Co., No. 1 Salton Sea, Imperial Co.	1-	17-	15	650	suspended

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well and location—	S.	T.	R.	Depth	Status—
Fairview Oil Co., No. 1-A Purisima, Santa Barbara Co.	18-	7-	34	1,584	suspended
Listle, K. L., No. 1 Purisima, Santa Barbara Co.	33-	8-	34	grade	suspended
Standard Oil Co., No. 1 Goleta, Santa Barbara Co.	20-	4-	28	107	sd. drilling
Duell, O. S., No. 1 Naples, Santa Barbara Co.	7-	4-	29	5,133	suspended
Equity Oil Co., No. 1 Coal Oil Point, Santa Barbara Co.	24-	4-	29	3,750	suspended
Bolsa Chica, No. 1 Coal Oil Point, Santa Barbara Co.	tideland			4,089	suspended
Bolsa Chica, No. 2 Coal Oil Point, Santa Barbara Co.	tideland			4,153	deepening
Cuyama Oil Co., No. 1 Cuyama, Santa Barbara Co.	12-	10-	27	2,387	suspended
Woodrow Pet., No. 1 Rincon, Ventura Co.	4-	3-	24	7,292	prod. test
Indian Pet., No. 1 Rincon, Ventura Co.	tideland			3,484	prod. test
Commander Oil Co., No. 1 Fillmore, Ventura Co.	13-	4-	19	2,400	suspended
Hancock Oil Co., No. 1 Fillmore, Ventura Co.	13-	4-	19	1,232	sd. sh. drilling
Honolulu Consolidated, No. 1 Miguelito, Ventura Co.	23-	3-	24	6,491	hd. sh. drilling
Continental, No. 2 Miguelito, Ventura Co.	23-	3-	24	5,974	sd. sh. drilling
C.C.M.O., No. 3-A Miguelito, Ventura Co.	23-	3-	24	3,530	hd. sd. drilling
Midlands Pet., No. 1 Ojai, Ventura Co.	9-	3-	23	7,170	gr. sh. drilling
Macrate, A. N., No. 1 Ojai, Ventura Co.	27-	4-	23	2,071	suspended
Struve, R. E., No. 1 Ojai, Ventura Co.	13-	4-	23	....	location
Wilshire Oil Co., No. 1 Sulphur Mountain, Ventura Co.	20-	4-	21	1,863	cleaning out
Mosher, J. W., No. 1 Santa Paula, Ventura Co.	22-	4-	21	1,141	gr. sd. drilling
Petro Producing Co., No. 1 Timber Canyon, Ventura Co.	18-	4-	20	4,630	hd. sd. drilling
Las Posas Pet., No. 1 Las Posas, Ventura Co.	22-	3-	20	2,979	cleaning out
Wilshire Oil Co., No. 1 Bardsdale, Ventura Co.	12-	3-	20	1,732	suspended
International Oil Developers, No. 1 Conejo, Ventura Co.	33-	2-	20	2,770	pumping test
Anderson, C. L., No. 1 Santa Susana, Ventura Co.	36-	3-	18	1,471	prod. test
Hub Pet. Co., No. 1 Gould Hills, Kern Co.	22-	29-	21	5,868	br. sh. drilling
Purman, T. H., No. 2 Gould Hills, Kern Co.	27-	30-	21	335	suspended
General Pet., No. 1 McKittrick, Kern Co.	10-	30-	21	320	sd. drilling
Casa Mira Oil Co., No. 1 Belridge, Kern Co.	29-	28-	20	2,400	br. sh. drilling
General Pet., No. 1 Belridge, Kern Co.	30-	28-	21	3,260	suspended
Milham Exploration Co., No. 24 Buttonwillow, Kern Co.	5-	28-	22	2,625	suspended
Cumberland Oil Co., No. 2 Devil's Den, Kern Co.	17-	26-	18	3,270	suspended
Holloway, A. S., No. 1 Devil's Den, Kern Co.	11-	25-	18	1,848	suspended
Lincoln Pet., No. 1 Devil's Den, Kern Co.	10-	25-	18	1,290	br. sh. drilling
Hanna, Tom, No. 1 Devil's Den, Kern Co.	35-	25-	18	3,516	suspended
Pyramid Hills Oil Co., No. 1 Devil's Den, Kern Co.	34-	25-	18	3,901	br. sh. drilling
Fowler, F., No. 1 Blackwell Corner, Kern Co.	15-	26-	19	3,170	suspended
Rio Cal Pet., No. 1 Shale Hills, Kern Co.	2-	27-	18	3,855	suspended
Associated, No. 1 Lost Hills, Kern Co.	3-	26-	20	4,050	hd. sh. drilling
Seminole Oil Co., No. 1 Lost Hills, Kern Co.	29-	25-	21	rig	suspended
Caravel Pet. Co., No. 1 Edison, Kern Co.	19-	30-	30	1,002	sd. sh. drilling
Descanso Oil Co., No. 1 Wheeler Ridge, Kern Co.	31-	11-	19	2,620	suspended
Gatton & Luethe, No. 1 Madera, Madera Co.	22-	10-	17	2,311	sd. sh. drilling
Bergman, Harry, No. 1 Kingsburg, Fresno Co.	12-	12-	11	4,023	suspended
Graham & Loftus, No. 1 Raisin City, Fresno Co.	20-	15-	13	5,534	sd. sh. drilling
Emerich Oil Co., No. 1 Mendota, Fresno Co.	35-	13-	13	2,760	sd. sh. drilling
Hogan, Dana, No. 1 Joaquin Ridge, Fresno Co.	28-	20-	16	343	sd. sh. drilling
Kent & McDonald, No. 1 Carrizo Plains, S. Luis Obispo Co.	3-	32-	23	3,830	fishing
Paso Robles Oil Co., No. 1 Edna, San Luis Obispo Co.	27-	27-	11	4,191	suspended
Guess, E. B., No. 1 Corcoran, Kings Co.	7-	21-	21	6,197	suspended
Brown, A. M., No. 1 Cloud, Kings Co.	10-	22-	19	1,305	recemented
Dudley Dome Oil Co., No. 1 Dudley Ridge, Kings Co.	2-	22-	20	3,012	suspended
Tulaco Oil Co., No. 1 Ridge, Kings Co.	36-	22-	20	2,000	suspended
Knudsen & Schmidt, No. 1 Reef Ridge, Kings Co.	36-	22-	17	6,872	suspended
Kettleman Ridge Oil Co., No. 1 Avenal, Kings Co.	10-	22-	18	312	suspended
Magee & Stone, No. 2 Aipaugh, Kings Co.	32-	24-	22	1,501	bl. sh. drilling
Dil-Harp Oil Co., No. 1 Delano, Tulare Co.	25-	24-	26	1,210	cleaning out
Na-Pa Oil Co., No. 1 Griffith, Napa Co.	7-	8-	3	3,720	br. sh. drilling
Oakdale Oil Co., No. 1 Oakdale, Stanislaus Co.	5-	2-	10	4,813	redrilling
Rushing Oil Co., No. 1 Waterford, Stanislaus Co.	29-	3-	13	3,631	suspended
Pacific Northern Oil Co., No. 1 Guinda, Yolo County	22-	12-	3	3,410	br. sd. drilling
Buttes, Oilfields Co., No. 1 Marysville, Sutter Co.	35-	16-	1	2,731	gas, shut in
Buttes Oilfields Co., No. 2 Marysville, Sutter Co.	34-	16-	1	1,141	sd. sh. drilling
Tehama Pet. Co., well No. 1, Glenn Co.	4-	22-	5	4,280	showing gas
Orland Synd., No. 1 Orland, Tehama Co.	21-	22-	3	3,748	suspended
Marker Drlg. Co., No. 1 Orland, Tehama Co.	21-	25-	3	2,939	suspended

Geophysical Crews in Northeastern Colorado; Deep Test Planned for Dutton Creek, Wyo.

By TOLBERT R. INGRAM
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., June 5.—Sixty thousand New Mexico voters signed petitions for a referenda of laws imposing taxes on crude oil production and lubricating oils. Drilling is at a standstill in the Hobbs Pool. Continental and California companies' No. 1-A Wells in the Jal Pool gauged 51,000,000 feet of gas and is drilling deeper. Two wildcats are being started in Las Animas and Huerfano Counties in Colorado. Geophysical surveys in northeastern Colorado are on the increase. A Pennsylvanian test in Boulder County reports a show of oil.

In Wyoming, Maverick Springs operators are making inquiries regarding pumping equipment in anticipation of opening up that field for production under government orders. Mutual Oil Syndicate made a location for a deep test at Dutton Creek. Operators and state officials reached an agreement regarding specifications for tractor fuel in the Osage district.

In Montana Tarrant's No. 1 Miller in the Cut Bank Field is flowing 450 bbls. per day and Hannah-Porter Co. brought in an average producer. One new location was reported. An old wildcat in Liberty County is to be deepened to the Wilcox sand.

NEW MEXICO

Petitions for referenda of measures enacted by the last state legislature imposing a severance tax of 4 cents per barrel on crude oil and a tax on lubricating oils were filed with the secretary of the state by Harry Leonard and Steve Hannafan, of Roswell. The petitions were officially accepted by Mrs. Marguerite P. Baca, secretary of state, which automatically suspends the laws until the next regular election unless administration forces opposed to the referenda succeed in upsetting this action by court procedure. Litigation is considered very likely.

Lea County

There are no wells drilling in the Hobbs Pool at this time.

In the Jal area, Continental Oil Co. and California Co.'s No. 1-A Wells, SW NE NW Section 12-25-36, is coring in lime at 3,260 feet. At 3,200 feet it stopped for a test and gauged 51,000,000 feet of gas. This well is an east offset to Continental's No. 1 Wells which was completed in 1929 at 3,560 feet for 139 bbls. initial.

Texas Co.'s No. 1-B Shepard, NW cor. SW Section 5-26-37, which was reported a completion last week, making 303 bbls. of oil plus 30 per cent water, is being produced at capacity. The oil is being treated to remove the water. It topped the anhydrite at 895 feet and the salt at 1,105 feet. The base of the salt was at 2,598 feet and the top of the brown lime at 2,608 feet. The top of the white lime was at 2,845 feet and total depth is 3,262 feet. The elevation is 2,976 feet.

E. B. Guess' No. 1 Conditt, C SW SW Section 12-25-36, is shut down at 530 feet waiting for rotary tools.

In the Lea area, Cranfill & Reynolds' No. 4 State, C Lot 10, Section 2-21-33, is rigging up, and Texas Co.'s No. 3-A Lynch, C NW NE Section 34-20-34, is drilling at 1,445 feet . brown shale.

Eddy County

R. D. Compton's No. 4 Brainard, SE SE Section 5-18-27, Artesia area, which last week was estimated good for 10 bbls. per day at 1,998 feet total depth, was deepened and at 2,006-11 feet it began making two bailers per hour of water. It is drilling at 2,110 feet in gray lime. Flynn, Welch & Yates' No. 64 State, SE NE NW Section 10-19-28, is drilling at 1,785 feet in gray lime.

Western Drilling Co.'s No. 2-A Green, C SW NE Section 29-17-29, Jackson area, is drilling at 1,105 feet in anhydrite.

Harry Leonard and the Barnsdall Oil Corp.'s No. 1 Dodd, SW SE SW Section 22-17-29, which made 18 bbls. the first 24 hours at a total depth of 2,993 feet after being given an acid treatment, improved to 24 bbls. initial upon being completed. The oil is coming from inside the casing. It also is making 1,740,000 feet of gas between casings through a bradenhead. The gas is being produced, but the oil production is shut in. The oil was found at 2,714-18 feet and the gas at 2,280-85 feet. It topped the brown lime at 2,089 feet and the Terry at 2,595 feet. The elevation is 3,539 feet.

Ralph Spearow and others' No. 1 McClellan, SW NW NE Section 22-22-23, Indian Creek, is drilling at 2,403 feet in lime. At 2,270-80 feet it made enough gas to show through 1,800 feet of water.

Guadalupe County

Anton Chico Development Co., Ltd.'s No. 1 fee, NE cor. SW Section 20-9n-17, Anton Chico grant, is bottomed at 2,189 feet in brown sand and lowering the 8¼-inch for a water shutoff. It had a show of gas at 2,119 feet and water at 2,189 feet.

Chaves County

Warman Oil Trust's No. 1 Weldon & Hoar, NW cor. SE Section 9-14-25, Blackdom district, is drilling at 925 feet in lime. It had sulphur water at 891-902 feet.

Valencia County

The Western Natural Resources Corp., Inc.'s No. 2 San Clemente grant, SW cor. NE Section 5-6n-1e, De Chaves district, is drilling at 4,475 feet in brown and red sandy shale.

San Juan County

Kutz Canon Oil & Gas Co.'s No. 1 Day, SW cor. Section 20-28-10, Kutz

(Continued on Next Page)

Athabaska Test Encounters Fifty Foot Sand; Strong Indications of Commercial Crude

By VICTOR LAURISTON
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, June 3.—In the Athabaska district, Northern Alberta, Athadome Oils' No. 2, LSD 3, Section 15-66-23w4, is reported to have encountered a 50-foot sand with strong indications of a commercial production of heavy crude. The sand was encountered at 1,650 feet, according to a statement of Senator Edward Michener, president of the company, who recently returned from the well. Owing to mechanical trouble the well has not yet been given a full production test. The well is close to Athabaska Landing about 100 miles north of Edmonton and approximately 150 miles northwest of the Wainwright Field. The company started operations last year when Athadome's No. 1, NE Section 20-72-24w4, was drilled, F. H. Stover & Son of Chatham handling the contract. This well got some gas but later drilled into water and was abandoned, at about 1,900 feet. Geological information secured in this test and in the unfinished test of Crudome Oils, Ltd., in LSD 16, Section 24-72-23w4, near Mirror Landing, led the company to locate its No. 2 well considerably farther south at what was thought to be a higher point on the structure. No. 2 was started as a contract test but later the company took over the drilling outfit and has since handled the work under the direction of C. E. Michener.

Outcrops on the banks of the Athabaska show a 200-foot thickness of oil sands, with numerous oil and gas seepages. In drilling No. 2, a number of gas shows were met, the most important being at 1,315 feet and just above the oil sand at 1,650 feet. It is understood that after the oil show was struck the test was drilled through the 50 feet of sand and considerably deeper.

Athadome Oils, Ltd., is financed by Toronto capital and holds extensive acreage in the Athabaska area. Some acreage near Mirror Landing is held by Crudome Oils, Ltd., of Toronto, which drilled its No. 1 test to a reported depth of 400 feet. No other leasing has been reported. The potential oil area is very large but the field is isolated and transportation conditions are difficult, river scows and caterpillar tractors being used for handling drilling equipment. The Athadome company's original program called for a total of six wells on its acreage, and if production of No. 2 measures up to expectations, an intensive drilling program may be undertaken this summer.

North Turner Valley

In the North Turner Valley Field, interest centers in Model Oils' No. 2, LSD 16, Section 22-20-3w5, which got the top of the Madison limestone at 5,524 feet and after cementing 8-inch casing at 5,545 feet started drilling to the porous horizon of the lime. The test has logged more than 100 feet higher than Model's No. 1, half a mile south. No. 1 has a good production from the Madison lime at 5,905 feet; unlike the deep lime producers of the Central and South Turner Valley areas, the production is rated as light crude rather than naphtha and there is comparatively little gas with it.

United Oils' No. 4, LSD 2, Section 24-20-3w5, on the northeast flank of the North Turner Valley structure has been given a shot in the Dalhousie sand, but after cleaning the light crude production showed little improvement. The well may be abandoned, though the operators are still working on it.

No further work has been reported on McLeod Oil Co.'s No. 4, LSD 16, Section 1-20-3w5. This test in the heart of the central field was last year carried to a record depth for Canada of 7,755 feet, exceeding the previous record of British Dominion's No. 1, also in the Turner Valley, by about 1,155 feet. In deepening, McLeod's No. 4 passed out of the Madison lime into the Banff shales at about 5,560 feet, and at 5,860 feet encountered a small production of 50 gravity crude, with further showings reported at 6,150 feet, and a still further show at 7,430 feet. The test was shut down in the fall owing to the risks of deep drilling under winter conditions, but it was then intended to make a production test this spring, with possibilities of drilling deeper.

South Turner Valley

In the South Turner Valley area, Hoffar-Lundy Syndicate's No. 1, LSD 13, Section 22-18-2w5, is unofficially reported drilling below 1,350 feet. It entered Benton shale around 825 feet and encountered a crude oil show in the Benton at about 1,000 feet. Hoffar-Lundy's No. 2 has been tentatively located in the same LSD.

Becker Syndicate's No. 2 Anaconda, LSD 15, Section 28-18-2w5, is drilling below 2,100 feet and hauling 13⅜-inch casing which will be set between 2,500 and 3,000 feet. It got the cardium sandstone marker at 1,597 feet, indicating it is logging about 70 feet higher than Merland Oil Co.'s No. 1 producer, just east in Section 27. Pacalta Oils' No. 1, LSD 7, Section 28-18-2w5, is reported ready to spud in.

Hunter Valley Test

In the forest reserve area west of Olds Hunter Valley Oil Co.'s No. 1, Township 31-10w5, is reported setting 21½-inch pipe. The company was organized by the British geologist, Campbell M. Hunter. Its holdings aggregate more than 27,000 acres covering a number of structures in this portion of Alberta, none so far tested. The only other active drilling in this part of Alberta is Cartier-Majestic's No. 1 test on the Monarch structure in LSD 3, Section 36-31-7w5, which is on a separate structure. Mr. Campbell's report on the structure indicates that the Madison limestone, the major producing formation of the Turner Valley Field, should be struck within 4,500 feet on the Katherine anticline, and that the first potential oil horizon in the lower Benton may be met inside 1,500 feet of drilling.

Twin River

On the Twin River structure southeast of Lethbridge, Nordon-Rooney's No. 2 Twin River, LSD 11, Section 2-2-20w4, is reported below 3,465 feet and preparing to run 8-inch casing. While the cement is setting the combination rig will be changed from rotary to standard tools. Parco Oil Co.'s No. 1 Twin River which was lower on structure, got a good

show of crude just below the Madison contact at 3,650 feet, which on its early tests made around 10 bbls. a day, later dropping to about 2 bbls.

Red Coulee Field

In the Alberta end of the Red Coulee Field, Devonshire Oils' No. 1, LSD 3, Section 10-1-16w4, is reported drilling below 2,510 feet. Skov Oil Co.'s No. 1, LSD 2, Section 2-1-172e4, is at 2,100 feet and fishing.

Wainwright Field

In the Wainwright Field, East Central Alberta, Wainon Oils, Ltd., has purchased the derrick and equipment of the Interior Oil Co.'s well near Wainwright. The outfit will be moved to a new location, where a test of the Wainwright sand will be drilled. Interior Oil Co.'s No. 1, LSD 9, Section 36-44-7w4, was taken over and completed about 1929 by Wainwell Oils, Ltd., of Toronto and had a promising flush production, which failed to hold up. Six oil shows were met between 1,580 and 2,090 feet.

Hudson Bay Junction

In the Hudson Bay Junction area of northern Saskatchewan, Trail Blazer Oil & Gas Co. has shipped in a standard outfit and 6-inch rig irons to make a deep test. Trail Blazer's No. 1 has been located on SW Section 32-44-2w2 on the axis of the structure and close to a big fault, where conditions are considered excellent for commercial production. A shallow test drilled last season by Petroleum Engineering Co. in a less favorable location gave a good show of crude oil at around 240 feet. Trail Blazer Oil & Gas Co. was organized recently by Regina, Saskatchewan, men. Contract for the test has been let to Withers Drilling Co. of Shelby, Mont. Road to location is being constructed and 82-foot standard derrick erected; and the test is expected to spud in about June 25. It is planned to drill clear to the Ordovician which at this point should be not more than 1,000 to 1,500 feet.

British Columbia Operations

In southeastern British Columbia, preparations are being made by Columbia Oils, Ltd., of Vancouver for the drilling of its No. 1 test in the Flathead Valley. The company was incorporated last November. The officers include: President, D. S. Wallbridge; vice president, A. J. Hendry; secretary treasurer, W. A. Sutton; directors, O. C. Thompson, F. E. Burke, W. S. Day, R. L. Reid and George W. Brake. Mr. Brake, who was formerly general manager of the International Petroleum Co., will be managing director. Dr. Victor Dolmage, formerly connected with the Geological Survey of Canada, is consulting geologist, and field operations will be in charge of F. M. McMahon.

The field of operations will be the Sage Creek and Flathead Valley areas in southeastern British Columbia just north of the international boundary. It is planned to drill No. 1 test this season, and arrangements are being made to ship a heavy-duty diamond drilling outfit in from the Turner Valley Field. The company holds 1,601 acres on the Sage and Kishinena Creek Domes, acreage selection having been made on recommendation of the company's geologist, Doctor Dolmage. Strong oil and gas indications have been known in the Flathead Valley since about 1890, but owing to the difficulty of access, development of the area has been held up. A good highway has now been completed from Columbia Falls while another road is planned from Corbin, in the Crow's Nest Pass.

Several tests have been drilled in various parts of the Flathead Valley area and some good shows of gas and high-grade crude oil have been encountered. The most recent test was Crow's Nest-Glacier Oil Co.'s No. 1, which was carried to 3,200 feet; at this depth a small commercial production of light crude oil was claimed, but owing to difficulties the well was not completed. The crude is very similar to the light crudes of the Turner Valley Field. Some difficulty has been experienced in penetrating the close-grained and exceptionally hard capping formations at depth, but it is believed diamond drill equipment will overcome this trouble.

Drilling in Ontario

In the old Tilbury Field, Kent County, Ontario, Ralph Dawson's No. 4, Tackaberry farm, Lot 2, Concession 15, Tilbury East Township, which last week looked like a failure, has been finished as a small gasser. The well encountered a small flow of gas, estimated at 5,000 feet a day, at 1,230 feet, and on deepening encountered salt water at 1,510 feet. It was planned to abandon it but when shut in a rock pressure of 450 pounds, about three times the normal pressure, developed; so a shot was tried which increased production to around 50,000 feet. Production will be taken by the Southern Ontario Gas Co.

In the Glenwood section, Glenwood Syndicate of Chatham will probably drill a third well. In Dover Township, Kent County, Raleigh Development Syndicate's No. 1 Stevens farm, Lot 2, front concession, is reported drilling below 2,000 feet, with the formations checking very favorably with other deep wells in this area. In Essex County, Bon Jasperson's No. 1, Lot 14, Concession 2, Maidstone Township, is reported drilling.

Rocky Mountain Area

(Continued from Preceding Page)

Canon district, is fishing for bailer at 4,100 feet total depth.

COLORADO

Las Animas County

Continental Oil Co. released a location this week for its No. 1 Maxwell grant, approximately in the SE NW NE Section 29-34-68, on the Tercio structure. The location is 30 miles southwest of Trinidad and about 4 miles north of the New Mexico boundary. The Maxwell land grant comprises more than 1,000,000 acres, of which about 380,000 acres are in Colorado and the remainder in New Mexico. Colorado Fuel & Iron Co., which operates large steel mills at Pueblo and is the principal coal producer in Colorado, owns the grant on the Colorado side of the line and Continental Oil Co. has a lease on a block of 5,400 acres. Colorado Fuel & Iron Co. operates a number of coal properties on the grant. The Tercio structure is a pronounced dome with a north-south trend and from 1,400 to 1,700 feet of closure. The Mancos is at the surface and an escarpment visible around the entire structure is composed of Trinidad sandstone. The contract calls for a 2,500-foot test to the Dakota, but it is believed that horizon will be found at a much shallower depth. Materials are being moved in.

Huerfano County

S. W. Pressey, of Pueblo, is starting a test in his No. 1 Ojo, SW NE Section 10-29-69, on the Oak View structure, a short distance northeast of La Veta Pass. It is about half a mile northeast of a well drilled in 1926 by Panuco Exploration Co. which had a good show of gas in what is supposed to be the Dakota at a total depth of 3,462 feet. While the operator estimated this gas amounted to 15,000,000 feet a day, the flow was generally accepted as being much less. There is a well-known oil spring known as the Ojo seep in Section 5-29-69. Ojo Exploration Co. drilled a well close to this seep in 1930 and had a show of 4 to 5 bbls. per day of green oil at 151 feet, but nothing below to 600 feet at which depth the test was abandoned.

Weld County

Continental Oil Co. and others' No. 1 Anthes, C NE NE Section 24-8n-59, New Raymer-Buckingham area, after cementing 7-inch at 6,473 feet, drilled out the plug and cemented back from 6,658 feet to 6,559 feet to shut off water in the Dakota. The bottom plug was then drilled out to 6,562 feet and it is preparing to run tubing to swab and test the Muddy sand which showed oil and gas in the cores on the way down to the Dakota.

Several crews working with geophysical instruments are in the field in northeastern Colorado. One of these is in charge of Dr. F. M. Van Tuyl, of the Colorado School of Mines, and is using a seismograph in the vicinity of Akron in Washington County. Another area attracting considerable attention is in western Logan County in what is known as the West Plains district. Kinney-Coastal Oil Co. and associates, have a block of 30,000 acres in that district covering a structure discovered and worked out by C. T. Lupton. There are good surface indications of structure and several large companies are reported interested in a proposed drilling agreement. Before reaching any definite conclusion, however, it was desired to do some shooting to ascertain whether the seismograph mapping will conform to the surface geology. Shooting was started at Greasewood and continued eastward to No. 1 Anthes and then into western Logan County. Lupton, who has several producing structures to his credit, looks upon the West Plains area as one of the most promising in northeastern Colorado.

Boulder County

Consolidated Smelting & Metals Co.'s No. 1 Blubaugh, SE cor. Section 20-3n-70, Lynons district (Rikhoff and others) is reported drilling at 810 feet in very hard limestone with a show of green paraffin oil at this depth. There is sufficient oil to coat the water on the bailer. It is just about at the depth at which the drillers expect the Sundance.

Larimer County

C. Leonard Smith's No. 2 Union Pacific, SW cor. Section 31-12-69, Sand Creek, is shut down at 615 feet, where it was having trouble running the 6¼-inch, and is preparing to resume. It had a show of gas at 610 feet and a show of oil at 560 feet. It is in the top of the Pennsylvanian formation.

Elbert County

J. M. Botts and others' No. 1 Union Pacific-Richardson, C NW SE Section 7-8s-58, Buick area, has been shut down for some time at 3,150 feet at which depth the small rotary rig used had

Hints of Practical Value

By VARNAKALE L. JONES

Consulting Engineer, Department of Physics, University of Oklahoma, Norman, Okla.*

Switch Operated by Variations of Fluid Flow

The design of Pitot tubes for the measurement of fluid flow has been treated quite extensively.[1] The present article is not concerned with the rate of fluid flow, but primarily with a method for controlling the rate of flow.

The problem as presented to the writer consisted of designing an apparatus that would close an electrical circuit when water ceased to flow in the cooling system of a "Diesel-controlled" pipe line station. The desirable features to be attained were three in number, the apparatus should be as simple as possible—free of moving parts, it should be rugged and sturdy, and it should require little or no attention after being set in operation.

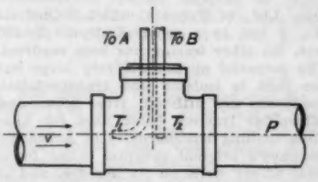


Fig. 1. Pipe mounting

Consider the diagram in Figure 1, in which v represents the velocity of flow through the pipe P. The pressure conditions in the region of T_1 and T_2 are, in view of Bernoulli's equation:

$$U/g = x + p/gd + v^2/2g,$$

where U represents the energy per unit volume of the fluid in the pipe as measured either at T_1 or T_2, assuming no loss of energy from T_1 to T_2, g, is the acceleration of gravity, x is the static head, p is the pressure in this region, and d is the density of the fluid. The second term on the right represents the pressure head, and the third term, the velocity head. The mouth of the tube T_1 will be subjected to the three heads: namely, the static head, pressure head, and velocity head. The mouth of the tube T_2, on the other hand, will be subjected only to the static head and the pressure head, since it is at right angles to the direction of flow, and there is no component of the velocity in this direction. Therefore, there will be an excess of pressure in T_1 over that in T_2 by an amount equal to the velocity head, $v^2/2g$.

If, now, the tubes T_1 and T_2 be hermetically connected to the mercury manometer at A and B, respectively, as shown in Figure 2, the excess of pressure in T_1 over that in T_2 will be balanced by the height of the mercury column in the iron pipe. Iron is used in this part of the manometer since it will not amalgamate appreciably with the mercury.

The height of the mercury column h increases as the square of the velocity v, whereas the depression of the mercury column in the glass tube increases with a decrease in the angle θ, and increases with v^2. The angle θ is made adjustable by means of a slotted arc and wing-nut as shown on the left side of the mercury manometer panel. The mounting for the glass tube rotates about a pivot as axis, as indicated in Figure 2.

When the flow in the pipe P ceases so that the velocity v becomes zero, the mercury will then rise in the glass tube and make contact with the sealed-in electrode, and thus complete the circuit between the binding posts at the top of the panel.

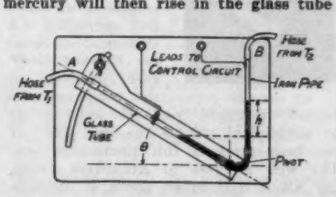


Fig. 2. Mercury manometer switch

Thus, for a given value of the rate of flow, the angle θ may be adjusted so that electrical contact is made when the velocity decreases to a given minimum value, or when it becomes zero, depending of course upon which function may be desired. The control circuit may be used in a variety of ways to regulate the velocity of flow between certain limits, or to control other equipment which in turn depends upon the rate of flow in the pipe P for its operation. These suggested operations may be accomplished by means of suitable magnetic relays and auxiliary apparatus.

It is thus seen that the instrument not only satisfies the original problem, but should find many useful applications not only in the pipe line station, but in power plants, refineries, pumping stations and power-controlled equipment in general. It should also prove quite useful in the laboratory where the rates of flow are involved. Moreover, the time and cost of construction are small, since the parts are few and easily obtained.

*Before Oklahoma Academy of Science, Stillwater, Okla.

[1] E. Oweb, "Instruments," 4, 9, 480, 1931.

reached its capacity. The original plan called for a 6,000-foot test, but little information has become available as to the intentions of the operators. They had 60,000 acres under lease and were reported under obligations to resume by May 1.

Prowers County

Shastatex Oil & Gas Co.'s No. 1 Lotus Oil, NW NE NE Section 15-23-46, Lamar district, is shut down for sand line at 375 feet with the 15½-inch cemented on bottom.

Park County

South Park Oil Co.'s No. 1 Milligan, NE cor. SE Section 13-8s-76, Jefferson district, is bottomed at 3,042 feet and mudding the 4¾-inch at 3,025 feet to make a water shutoff.

Routt County

Mid-Colorado Petroleum Co.'s No. 1 Omholt, NE cor. SE Section 29-4n-87, Fish Creek, which was shut down for the winter at 2,250 feet, is preparing to resume. W. H. Ingersoll, who is in charge of the operation, left Denver this week to resume. It had a show for 3,000,000 feet of gas in the Frontier, topped at 1,917 feet.

Moffat County

Mountain Fuel Supply Co.'s No. 2 Florence Wilson, C NE NE Section 22-12-100, the Hiawatha deep test, is drilling at 2,055 feet. Same company's No. 1 Hatch, C NW SW Section 9-11-101, Sugarloaf, has rig up.

New Gas Company

Equitable Gas Co. was incorporated in Colorado by Warwick M. Downing for Oklahoma parties, with a capital of 1,000 shares of no par value. Directors are Guy H. Pratt, Earl G. Colton, R. E. Aitcheson, D. M. Smith and Paul Holliman, of Muskogee. It is not expected that the company will operate in Colorado. The state legislature revised the Colorado incorporation laws two years ago and since then a number of companies to operate in other states have been formed here to take advantage of the law's favorable features.

WYOMING

Some of the operators in the Maverick Springs Field in Fremont County have been making inquiries regarding pumping equipment. This is considered an indication they are preparing for any emergency which may arise out of the order of the Secretary of the Interior for the producing of the field on and after September 1. At the hearing at Washington on May 17, Secretary Ickes declined to rescind the order, but indicated that he might modify it to conform to some plan submitted by the operators or royalty owners. There are 35 wells in the field owned by Continental, Ohio, Texas and Stanolind companies, estimated capable of making 6,000 to 10,000 bbls. per day. There are neither pipe line nor railroad facilities for the field, but plans are being worked out by W. R. Weeks and associates for the construction of either a pipe line or railroad, or by combining both. Reports are that indications are favorable for obtaining funds from the Government for this project this year.

Albany County

S. Marvin James & Co.'s No. 1 Hindry, C SW SW Section 10-13-76, Riverside district, is drilling at 1,218 feet and carrying the 6⅝-inch at 1,080 feet. The hole is believed to be on top of the Tensleep. Heaving formation, which comes up as much as 60 feet into the pipe, has hindered progress.

Carbon County

Mutual Oil Syndicate has made a location for its No. 9 Dutton Creek Oil & Gas, C N half, NE Section 12-18-78, for a test to the Muddy at 4,900 feet to be drilled with rotary. The location is to the south of the two Muddy sand wells drilled by Midwest Refining Co., and the several gas wells in the Shannon sand drilling by the Mutual Syndicate after it acquired the property from the Midwest. The syndicate has purchased rotary used by Associated Oil Co. at Rangely, Colo., and is trucking it to location.

Ohio Oil Co.'s No. 1 A. J. Haslett, SW Section 34-23-79, Allen Lake, is drilling at 385 feet. If this operation fails to find commercial gas in the upper horizons, it may be made into a test to the Pennsylvanian.

Earl W. Reeder, Inc.'s No. 1 Union Pacific, C SW SW Section 19-20-83, Pass Creek, is drilling at 800 feet.

Natrona County

Mutual Oil Syndicate's No. 1 Boyer, SW NE NE Section 23-35-79, Midway, is bottomed at 2,431 feet and preparing to make a test of the second bench of the Shannon sand. Empire State Oil Co.'s No. 17, NE Section 12-33-83, Poison Spider, is drilling at 1,200 feet.

Fremont County

Texas Co.'s No. 2 State-Ridgeway, SE SW SW Section 36-34-95, Alkali Butte, is still fishing for parted pipe at 4,911 feet, total depth after plugging back.

Sweetwater County

Mountain Fuel Supply Co.'s No. 2 Union Pacific, SE cor. NW Section 21-16-104, South Baxter Basin, is drilling at 200 feet, and its No. 2 Cappers, SW cor. NW Section 12-19-104, North Baxter Basin, is drilling at 2,580 feet with the Dakota as the next objective.

Niobrara County

Interstate Oil & Refining Co.'s No. 1 Morrell, NW NE SE Section 2-39-61, West Mule Creek, a test to the Minnelusa, is reported to have drilled by tools at 2,250 feet and to be making new hole. It is estimated to be about 200 feet off the objective.

Taking Inventory

Stanolind Oil & Gas Co. has a crew of 35 persons at work in Salt Creek taking an inventory of equipment and supplies used in operating the properties of the Salt Creek Producers Association, the Mountain Producers Corp., and affiliated interests. The Stanolind (Midwest) company has in the past operated the properties under a contract with the owners of the leases at its own expense. This contract expires with the end of 1933. In the event a new contract is not made, it is probable the companies will take over the operation of the properties and acquire the field equipment.

Weston County

Duluth-Wyoming Oil Co.'s No. 3, SE cor. SW Section 12-46-64, Osage Field, is drilling at 200 feet, and Rose & Herbison's No. 1, NW NE NE Section 13-46-64, is ready to spud. Paymac Oil Corp.'s No. 1 Toyne, SE NW NE Section 3-46-64, is drilling at 1,650 feet.

MONTANA

Carbon County

Ohio Oil Co.'s No. 9 Souders, C NE SW Section 2-7s-21, Dry Creek, is rigging up cable tools at 5,471 feet to drill into the Lakota.

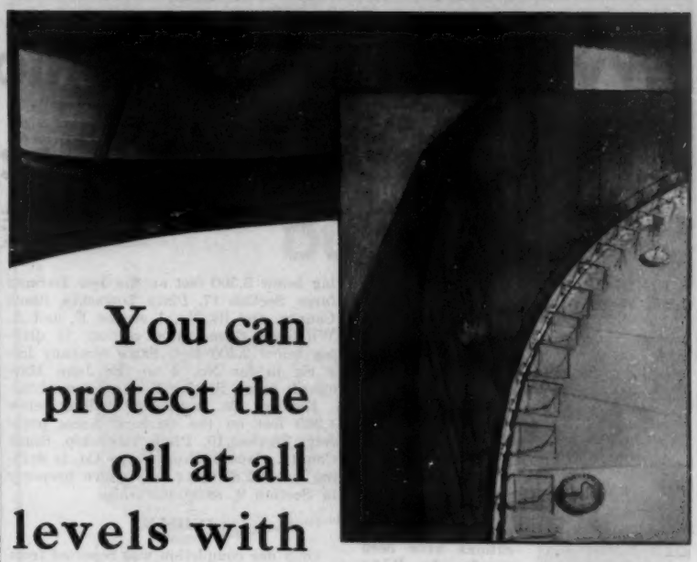
Glacier County

In the Cut Bank Field, R. C. Tarrant's No. 1 Miller, C NE NE Section 24-34-6w, which came in as the first flowing well in the field, is flowing 450 bbls. per day through tubing, the oil coming in an almost steady stream after the tubing with packer was run. This well's performance resulted in a rush of scouts into the district and also a large number of oil field workers looking for jobs. Reports from Cut Bank are to the effect that there are many more men available than jobs and that others should not come in unless assured of work.

One producer was brought in, Hannah-Porter Co.'s No. 1 Britton, NW NE NE Section 23-34-6w, in proven territory. The first oil was encountered at 2,850 feet and total depth is 2,893 feet. It is estimated at 40 to 50 bbls. as it stands, but will be given a shot of 160 quarts. The 8¼-inch is at 2,755 feet and not cemented.

Santa Rita Oil & Gas Co. and Sims' No. 1 Olson, NE cor. Section 26-34-6w, is drilling at 2,380 feet, and Santa Rita and Sweeney's No. 1 Jacobson, C NW NW Section 23-37-5w, far to the noth and reported running high, is still shut

(Continued on Page 66)



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Wyandot County, Ohio, Leading Lima Activity; Five Completions Are Reported in Michigan

By GEORGE A. WHITNEY
Staff Correspondent, Central West Fields

FINDLAY, Ohio, June 5.—In the Lima Field, Wyandot County takes the lead at this time, especially in Crane Township, where the past month three nice wells were brought in, one for 300 bbls. and the other two at 50 and 60 bbls. initial with six new wells under way and, according to reports, other locations have been made. In Pitt Township, same county, Newcomer and others are still shut down at 1,913 feet which does not look very favorable for production. It is on the Albert Reber farm, Section 1, Pitt Township, same county. O'Neal and others are still fishing for lost tools at 890 feet on the Arthur J. Ruehl farm, Section 1, Crawford Township, same county. In Crane Township, same county, Donaldson and others are getting near the pay sand on the Minor Koechler farm, Section 20, and Jones & Coyle are also nearing the pay in No. 3 on the Margaret Brillhardt farm, Section 28, same township. Kennedy & Temple have started No. 1 on the Mary Huffman farm, same township.

Lewis-Ennis Oil & Gas Co. is reported at 2,225 feet on the E. H. Brown farm, Lots 20 and 30, Grand Prairie Township, Marion County.

CENTRAL OHIO

Only three completions were reported from the Central Ohio Field for the week, although there are still a large number of wells under way and also new locations made. In Athens County, Williams Brothers' test on the G. W. Armstrong farm, Section 24, Berne Township, is reported a light gas well at 910 feet. A. W. Bengal's No. 6, on the A. and E. Orr farm, Section 25, Salisbury Township, Meigs County, is a light gas well and a hole full of water at a total depth of 1,641 feet and in the second Berea sand. Joe Rubin struck a small gas well in No. 1 on the Crosby J. Price farm, Section 5, Rutland Township, same county, in the Maxon sand at 1,032 feet.

In Summitt County, Greene Township, East Ohio Gas Co. is down around 4,000 feet in No. 2 on the Everett Bexler farm, Section 17, and started spudding at No. 2 on the John Wenhart farm, Section 20, same township. Same company is reported with a fishing job at 3,200 feet on the Otto Frank and others' farm, Section 20, Plain Township, Stark County. Same company is drilling below 3,700 feet in No. 1 on the H. G. McDowell heirs' farm, Section 15, same township, and around 1,000 feet in No. 1 on the Paul B. Belden farm, Section 18, same township. Same company has a rig in for No. 1 on the Charles and Stella Strausser farm, same section.

Brendel Producing Co. is making good headway in four wells, in Plain Township, Stark County, the most active field in the Central Ohio area. They are No. 1 on the J. S. Unger farm, Section 17, drilling below 4,000 feet; No. 1 test on the M. M. Bivenour farm, Section 9, drilling below 3,150 feet; No. 1 on the Minnie A. Sheets farm, Section 8, below 2,500 feet, and No. 1 on the I. and E. Markley farm, Section 9, same township, below 3,300 feet.

Cunningham Natural Gas Co. is drilling below 3,300 feet on the Jow Herman farm, Section 17, Plain Township, Stark County, and its No. 1 on the F. and A. Willaman farm, same section, is drilling below 2,400 feet. Same company has a rig in for No. 2 on the John Marquardt farm, Section 8, same township.

Kemrow Co. is reported drilling below 4,300 feet on the Orchard Acres property, Section 19, Plain Township, Stark County. Canton Drop Forge Co. is drilling below 2,800 feet on its own property in Section 9, same township.

INDIANA

Only one completion was reported from the Indiana fields, H. Risher and others' No. 2 on the H. J. Miley farm, NE Section 18, Washington Township, Pike County, which showed 1,470,000 feet of gas. H. A. Moore is shut down on the Earl E. Reed farm, NE Section 1, same township. Harry N. Bell is shut down on the George Leighty farm, Section 18, same township, also shut down at No. 4 on the R. N. Craig farm, Section 20. V. Burden is drilling No. 3 on the W. H. Smith farm, Section 17, same township. Claud E. Noble also is shut down at No. 2 Helen Smith farm, Section 17, and Charles C. Taliaferro, Jr., is shut down on the Charles E. Schaffer farm, Section 18, same township. In Logan Township, same county, L. Burnside Smith abandoned No. 3 on the Tom Wilson farm, Section 27, and Charles L. Diver and others abandoned No. 2 on the Glendora Robling farm, Section 14, same township.

Siosi Oil Corp. is shut down at 2,114 feet in No. 21 on the William Riggs farm, Section 32, Prairie Creek Township, Vigo County, in the Terre Haute area.

ILLINOIS

Illinois fields failed to report any changes.

KENTUCKY

Completions are scattered in the Owensboro Field of western Kentucky. In Daviess County, Frank Cox and others' No. 2, 650 feet from the south line and 150 feet from the west line of the R. E. Jackson farm, in the Cane Run Pool, developed into a dry hole at 710 feet.

In Muhlenburg County, Mike Callis and others' No. 3 on the Atherton heirs' farm, in the Greenville area, produced 10 bbls. initial at 620 feet. Johnson Oil & Refining Co. found a dry hole on the W. H. Hudson farm, 1 mile north of Livermore. McLean Development Co. is drilling No. 4 on the G. B. McManama farm, same county.

MICHIGAN

Five completions were reported from the Central Michigan Field during the week, with four producers and one dry hole. The best completion was drilled by the Smith Petroleum Co., in No. 1, 330 feet from the south and west lines of the Eli Bushara farm, SW SW NE Section 22, Porter Township, Midland County, with an initial of 1,030 bbls. from the Dundee formation. Edward Stewart and others, No. 2, 330 feet from the south and east lines of the J. Richmond farm, SW SE NW Section 22,

(Continued on Next Page)

Another Fair Well in Ritchie County, W. Va.; New Locations and Drilling Seem Probable

By STAFF CORRESPONDENT

PITTSBURGH, Pa., June 5.—Another fair well was completed in Lost Run Pool in Clay district, Ritchie County, West Virginia. The Hinton Farm Oil Co. completed a test on the J. L. and S. C. Robinson farm, formerly the L. E. Robinson farm, and it produced 150 bbls. the first day from the Injun sand at a depth of 2,057 feet. This well is about 400 feet southeast and offsets the discovery well, and it started a flow as soon as the sand was tapped. The production the second day was 70 bbls. and since then it has settled down to 60 bbls. a day.

Reviewing the operations in this pool since the Hinton well was completed the latter part of February and which has produced not less than 50 bbls. a day since, the completions consist of three fair producers and two dry holes. The second producer, that of Frank Finley and others on the Boehm and Neeley lease about 1,500 feet northwest of the Hinton, is making about 30 bbls. a day natural. One of the dry holes was an offset to the west of this producer. The other dry hole was about 4,000 feet northwest of the Hinton farm and on the Catherine Ball farm.

Two other tests are drilling in this pool and will soon strike the sand. The Richards Farm Oil Co. is down 1,700 feet on the Frank Ball farm. Egan and others have reached 1,620 feet on the A. H. Adams farm.

A fair amount of new drilling and new locations in West Virginia appears as probable seasonal work but there is a considerable betterment in sentiment in the East. The increased demand for crude is making itself felt, and there is little new production to help restore the totals to 90 per cent.

During the week there were three producers completed with an initial production of 154 bbls. Three new gas wells, one more than fair, were completed and but one dry hole.

SOUTHEAST OHIO

Only one well was completed in Southeast Ohio. In Section 17, Perry Township, Licking County, Ridgway and others completed a test on the Bessie Hoyt farm in the Berea sand. It made 3 bbls. the first day after shot and is estimated good for a 2-bbl. pumper.

In Monroe County, E. G. Cunningham and others drilled a test on the Samuel W. Gibson farm in Section 18, Franklin Township, through the Injun sand, a total depth of 1,255 feet. It proved to be a dry hole.

In Washington County casing is still be pulled in the deep test of Benedum & Trees on the E. E. Knowlton farm in Section 10, Independence Township. The Ohio shale at about 4,200 feet has not yet been uncovered for the shot which will be placed at that depth to determine the gas volume in that formation.

In Coshocton County, Mehowa Oil & Gas Co. is drilling on the Sol Haun farm, Section 8, Clark Township, and is down about 2,000 feet. A light showing of gas was found in the Berea sand around 950 feet.

In Muskingum County, Fritz Oil & Gas Co. has a rig standing on the Elza Fountain farm in Brush Creek Township. I. C. Robinson is drilling No. 3 on the A. D. Cline farm in Section 13, Lee Township.

WEST VIRGINIA

In addition to the one good producer in Ritchie County, the only other producer completed in West Virginia was a small well in Tyler County. In Union district, J. D. Holmes and others completed a test on the E. D. Dalrymple farm and have about a 1-bbl. pumper.

The remainder of the completions consisted of three gas wells, one of which appears fair. In Calhoun County, C. B. Lewis and others completed a test on the W. T. Kelley farm in Sherman district at 2,155 feet, the Injun sand. It is showing for about 1,750,000 feet a day, natural.

In Boone County, Cambridge Gas Co. completed No. 5 on the C. C. Lewis heirs farm in Scott district. It is a Berea sand gas well with a fair volume and has not been shot.

In Gilmer County, C. A. Jarvis and others completed a test on the John H. Houghton farm in DeKalb district. It is a gas well at 1,905 feet, the Injun sand, and is rated as a small well.

Drilling in West Virginia

In Ritchie County L. P. Bickel is drilling on the B. F. Kerns farm in Grant district. It is down about 700 feet. In the same district H. N. Rinehart is drilling his No. 1 on the J. B. Markey farm deeper and has reached 1,750 feet.

In Wood County, C. T. Smith has resumed drilling on the George Webber farm, Clay district, and has reached 975 feet. In Wirt County, M. H. Burke has reached 950 feet on the John Showalter farm, Clay district.

In Cabell County several new tests are listed. In Union district, G. W. Shipes is setting a machine to drill on the Collie Massey farm. In Guyandotte district, Copeland Gas Co. has set a machine on the E. N. Waugh farm. In this district, the Huffman Oil & Gas Co. has started drilling on the William Prindle farm, and Adkins and Marsh are rigging up on the C. M. Watts farm. Swanson and Martin has started drilling on the J. T. Tubert farm and are down 390 feet. In this district, C. C. Wolfe and others are nearing completion in No. 5 on the Ben Lomond Land Co. tract and are drilling

at 2,700 feet, and in their test on the T. H. Tanner farm are down 1,390 feet. Eureka Gas Co. is drilling around 1,550 feet on the Huntington Sand & Gravel Co. lot. In McComas district, Manufacturers Light & Heat Co. has started drilling on the W. H. Holton farm.

In Lincoln County, Cambridge Gas Co. is abandoning No. 1 on the Charles Harless heirs farm in Duval district. In Jefferson district, Celia Oil & Gas Co. is doing the same with No. 3 on the Croft Land Co. tract in Jefferson district. In Sheridan district, Kanawha Gas & Utilities Co. is drilling a second test on the Nona Johnson farm and is shut down at 1,515 feet for repairs.

In Wayne County, West Virginia Gas Co. has part of the materials on the ground on the Henry Adkins farm in Union district. This company has reached 2,330 feet on the C. M. Watts farm, same district.

In Putnam County, United Fuel Gas Co. is down 1,300 feet in No. 4,378 on the J. L. Ashworth farm in Curry district. In Scott district, Teays Valley Oil & Gas Co. is down for casing on the C. H. Cottle farm and at a depth of 1,700 feet.

In Boone County, Pond Fork Oil & Gas Co. has reached 2,330 feet in No. 14 on the Cole and Crane lease, Washington district. In this district, Wahandy Oil & Gas Co. has abandoned No. 1 on the J. M. Hopkins farm, and Madison Land Co. No. 1 on the Beecher Mullens farm. Pure Oil Co. is down 1,716 feet in No. 61 on the Federal Coal Co. tract, Sherman district, 1,939 feet on the L.R.&P. tract C, and 2,514 feet on the Pocatello C. & C. Co. property in Crook district. In Union district, B. F. Best and others are down 2,345 feet on the H. A. Casdorph and others' lease.

In Gilmer County, McCall & Co. are rigging up to drill No. 2 on the Mary Frymyer farm in DeKalb district deeper. A. E. Ellis and others are rigging up on the Ware and Webster lease.

In Smithfield district, Roane County, Charles Despard and others are rigging up on the Charles Starcher farm. George Smith and others are about due in the Injun sand in their second test on the C. A. Kendall farm, Spencer district.

In Sheridan district, Calhoun County, W. J. and O. L. Yoke are drilling a second test on the A. T. Yoke farm and are down 500 feet. Everet Starcher and others have part of the material on the ground on the C. C. Starcher farm, Center district.

SOUTHWEST PENNSYLVANIA

No completions were recorded in Southwest Pennsylvania and there are still only three wells drilling. In Amwel Township, Washington County, Hallam and Lewis have shut down at 2,632 feet for the 5⅛-inch casing. When placed the well will probably be completed in 10 days. Carnegie Natural Gas Co. is drilling at 1,900 feet on the Mrs. Meunser farm. Raymond Orrill has reached 640 feet in his No. 3 on the Martha Hazlett farm. With any additional increase in the allowable, and an incentive in a higher crude market, this section will probably become very active.

WILDCATS

The Benedum & Trees test on the Pocahontas Coal Co. tract in Big Creek district, McDowell County, is down again with a fishing job. The depth is around 6,600 feet. In Wise County, Virginia, their test on the I. Kaufman farm is drilling and has reached about 3,600 feet.

Central West Fields

(Continued from Preceding Page)

same township, is reported with an initial of 100 bbls., while Pure Oil Co.'s No. 3, 330 feet from the north and east lines of the D. E. Harrison farm, SW Section 18, Greendale Township, same county, produced an initial of 75 bbls.

In Isabella County, Mammoth Petroleum Corp.'s test, 330 feet from the north and west lines of the Marcillers farm, NW NW SE Section 23, Vernon Township, produced 100 bbls. initial.

In Saginaw County, Smith Petroleum Co.'s test, 900 feet from the north line and 330 feet from the east line of the Charles H. Wiltse farm, on the east 80 acres of the N half NE Section 28, Birch Run Township, was dry in the Berea sand at 1,575 feet.

Nearing Pay Sand

Johnson & Kirkcombe's No. 1, in the northeast corner of the Otway farm, NE NE NE Section 27, Porter Township, is expected to drill in within a few days. This rig was up during the early days of the Porter Township Field, and offsets to the west the first commercial well developed in Porter Township, by the Michigan & Pacific Co.

Sun Oil Co. has another well nearing completion, No. 1, in the southeast corner of the J. L. Miller estate, SE SE NW Section 16, Porter Township, Midland County, reported below 3,100 feet. Talbot Oil Co.'s No. 4 "C," in the southeast corner of the State of Michigan land, SE SE SE Section 10, Greendale Township, same county, is drilling below 3,000 feet. After a long and tedious fishing job, Theodore Oil Co. is drilling again on its No. 1, 990 feet from the north line and 330 feet from the east line of the Adrian Steed farm, NE NE SE Section 8, Greendale Township, Midland County, and is due to complete within a few days. W. A. Robinson and others in the southwest corner of the H. J. Oldham farm, SW SW SE Section 6, same township, is also nearing the pay sand in the Dundee. This Oldham farm test looks like a good prospect with the formation running higher than on tests checked about a half mile south.

Thus far there have been no failures in Porter Township. In the early development a number of tests were drilled into water in quest of the big pay sand. Recently there has been a policy to stop drilling before reaching the deeper pay sand which holds water.

Field Pickups

Pure Oil Co. will give the wells on the P. O. Mates farm, Section 22, Porter Township, Midland County, a treatment of acid in hopes of bringing up the production.

Michigan Gas & Oil Co. has landed a string of drive pipe in its test on the W. Busche farm, C SW SW Section 10, Wise Township, Isabella County. This test is of particular interest because of its location in wildcat territory and in a region that has been regarded by many as potential oil producing territory.

Meridian Oil & Gas Co. is shut down on top of the Dundee in No. 2 on the Russell farm, Section 22, Vernon Township, Isabella County. Mellon-Pollock Oil Co. is driving pipe in a test 660 feet from the south and east lines of the Frank McGuire farm, C SE SE Section 36, same township. J. V. Wicklund is drilling No. 2 in the southeast corner of the Dan Carmichael farm, SE SE NE Section 22, same township. Strange and Flynn have their drive pipe in their test on the W. E. Currie farm, SE SW SE Section 5, same township and county.

Charles Teater's No. 3, in the southwest corner of the Otway farm, SW NE SW Section 22, Porter Township, Midland County, drilled in during April with an initial of 250 bbls., has been treated with acid and boosted to 800 bbls.

New Permits

Permit has been issued to James M. Taggert and others for No. 2, 825 feet from the north line and 495 feet from the west line of the Robert Fish farm, NW SE Section 10, Austin Township, Mecosta County; to Thompson & Fortney, for a well, 330 feet from the south and west lines of the Gilbert A. Currie farm, SW SW SW Section 16, Mount Haley Township, Midland County; to Walter F. Felton and associates for a well, 330 feet from the south and east lines of the Inah M. Miller farm, SE SE NW Section 10, Greendale Township, Midland County, and to McClanahan Oil Co., for No. 1 in the southwest corner of the S. M. Densmore farm, SW SW NW Section 4, Porter Township, Midland County.

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THE OIL AND GAS JOURNAL

Tulsa, Oklahoma

Gulf Coast Fields and Wildcats

(Continued from Page 50)

The Texas Co.'s No. 3 Wilburn (W.O.), Henry Griffith League ..... Drlg. hard sand and lime 4,566 ft.
Yount Lee Oil Co.'s No. 20 Chambers County, Wm. Bloodgood Sur., 350 ft. from NW line and 50 ft. from SW line of lease ..... Drlg. sand and boulders 2,452 ft.
Yount Lee Oil Co.'s No. 23 Chambers County, Wm. Bloodgood Sur., 200 ft. from W line, 2621/2 ft. from N line of lease ..... Drlg. salt 2,284 ft; top 2,236 ft.

RABBS RIDGE—FORT BEND COUNTY

Cullen & West's No. 2 Whitmore, Samuel Kennedy Sur., 476 ft. W of No. 1 and 350 ft. N of S line ..... Drlg. gumbo 895 ft.
Gulf Prod. Co.'s No. 3 Edwards & Riggins, Samuel Kennedy Sur., 1,302 ft. N along W line and 316 ft. E at right angles ..... Drlg. shale and lime 2,833 ft.
Humble O. & R. Co.'s No. 16-A F. I. Booth, Samuel Kennedy Sur., 932 ft. E of No. 6 ..... Sand 5,300 ft; cmtd. 7-in. csg.
Humble O. & R. Co.'s No. 7 T. R. Booth, J. Rabb Sur... Comp. 50 bbls. per hour; 5/8-in. choke, 5,300 ft.
Humble O. & R. Co.'s No. 8 George, J. Rabb Sur., 1,300 ft. E of No. 7 ..... Cmtd. csg.; T.D. 5,400 ft.
Humble O. & R. Co. and Gulf Prod. Co.'s No. 19-A Lockwood & Sharp, J. Rabb Sur. ..... Drlg. shale and lime 2,517 ft.
Humble O. & R. Co.'s No. 14-B Lockwood & Sharp, J. Rabb Sur., 500 ft. from E line, 302 ft. from S line.. Drlg. sand and shale 4,913 ft.
Humble O. & R. Co.'s No. 8 Meyers, J. Rabb Sur. ..... Drlg. shale and lime 4,637 ft.
Powers Prod. Co.'s No. 1 Fred Weisse, Samuel Kennedy Sur., 300 ft. N of S line in center E and W of 10-ac. tract ..... No report.

HIGH ISLAND—GALVESTON COUNTY

Yount Lee Oil Co.'s No. 3 Broussard, M. Dunman Sur., 150 ft. E of center of W line of tract ..... Drlg. shale 6,478 ft.
Yount Lee Oil Co.'s No. 34 Cade, N. Fitzsimmons Sur., 656 ft. S of No. 33 ..... Drlg. shale 5,490 ft.
Yount Lee Oil Co.'s No. 35 Cade, N. Fitzsimmons Sur., 600 ft. S of No. 34 ..... Drlg. sand and shale 5,460 ft.
Yount Lee Oil Co.'s No. 36 Cade, N. Fitzsimmons Sur., 600 ft. from S line, 240 ft. E of No. 34 ..... Rigging up.
Yount Lee Oil Co.'s No 15 Smith, Martin Dunman Sur., 1,623 ft. from NW line, 315 ft. from SW line ..... Comp. 1,150 bbls. daily; 1/4 and 5/16-in. chokes, 5,205 ft.
Yount Lee Oil Co.'s No. 16 Smith, Martin Dunman Sur., 300 ft. SE of No. 12 and parallel to land line ..... Drlg. hard sand 5,775 ft.

ARIOLA—HARDIN COUNTY

Republic Prod. Co.'s No. 2 Ariola fee, Ariola Sur., 400 ft. S of No. 1 ..... Rigging up to pump 4,320 ft.

BATSON—HARDIN COUNTY

Danciger O. & R. Co.'s No. 1 Hooks, 95 ft. S, 150 ft. W of NE cor. of Strip 13, Donoghue Sur. ..... Sticky shale and lime 4,620 ft.; fishing drill pipe.

PIERCE JUNCTION—HARRIS COUNTY

Rio Bravo Oil Co.'s No. 11-A Settegast (W.O.), J. Kopman Sur., 650 ft. from N line, 350 ft. from E line of lease ..... T.D. 4,620 ft; pulling screen to deepen.

TOMBALL—HARRIS COUNTY

Humble O. & R. Co. and Magnolia Pet. Co.'s No. 1 Fritz Kobs, J. N. Hooper Sur., 1,645 ft. S, 330 ft. W. of NE cor. of lease ..... Rigging up.
Humble O. & R. Co. and Magnolia Pet. Co.'s No. 1 G. W. H. Martens, lower W. Hurd Sur., center of 320-ac. tract ..... Building derrick.
Humble O. & R. Co. and Magnolia Pet. Co.'s No. 1 Herbert Reid, Chauncy Goodrich Sur. ..... Building derrick.
Magnolia Pet. Co. and Humble O. & R. Co.'s No. 1 Wm. Rudel (63 acres), Joseph House Sur., 350 ft. out of SW cor. of lease ..... Rig.
Magnolia Pet. Co and Humble O. & R. Co.'s No. 1 Martens, Joseph House Sur., 600 ft. from W line and 5,600 ft. from S line of tract ..... Drlg. hard sandy shale 6,477 ft.
Polk Drlg. Co.'s No. 1 Malcomson, A. Schouten Sur., 500 ft. from N line and 1,300 ft. from E line of 283-ac. Daniel's tract ..... Cored hard sand 1,827 ft; S.D.
H. H. Sloan's No. 1 Peden, 750 ft. from N line and 1,000 ft. from W line of John Brock Sur. ..... Drlg. sticky shale 4,278 ft.

SARATOGA—HARDIN COUNTY

Rio Bravo Oil Co.'s No. 98 Jordit, Jordit Sur. ..... Rig standing.

HANKAMER—LIBERTY COUNTY

Gulf Prod. Co.'s No. 1 Crowe & Jacobs, H.&T.C. Sur., Sec. 21, 900 ft. from W line, 1,700 ft. from S line of N 320 ac. of section ..... Drlg. hard shale 5,525 ft.

HULL—LIBERTY COUNTY

W. B. Flynn's No. 1 Cantor, Jesse DeVore Sur., 150 ft. E and 100 ft. N of SE cor. of tract ..... Spudded.
Mirmar Oil Co.'s No. 1 Hannah, Jesse DeVore Sur., 750 ft. from E line, 250 ft. from N line of 10-ac. tract.. Spudded.
The Texas Co.'s No. 3 Hannah (W.O.), Jesse DeVore Sur. ..... Rigging up to W.O. 5,117 ft.

CONROE—MONTGOMERY COUNTY

Alpha Oil Co.'s No. 4 Keystone Mills, L. Smith Sur., 467 ft. N and E lines of lease ..... Comp. 75 bbls. per hour; 1/2-in. choke, 5,095 ft.
Alpha Oil Co.'s No. 5-A Krohn, S. H. Bryan Sur., 396 ft. from N line in center E and W of tract ..... Comp. 80 bbls. per hour; 1/2-in. choke, 5,100 ft.
Atlas Oil Co.'s No. 1 Wahrenberger, R. C. Hamlet Sur., 300 ft. N, 600 ft. E of center of lease ..... Rig standing.
Bishop Oil Corp.'s No. 1 Rhodes, W. S. Rhodes Sur., 466 ft. from E line in center N and S of 25.5-ac. tract ..... Coring sand 5,050 ft.
H. M. Crighton's No. 1-A South Tex. Dev. Co., T.&N.O. Sur. No. 5, center of 16.31-ac. tract ..... No report.
E. S. Craft's No. 1 Granger, T.&N.O. Sur. No. 14, 467 ft. out of NW cor. of 77-ac. lease ..... Drlg. shale 4,697 ft.
Peltex Oil Co.'s No. 2 Kirby-Bertrand, Wagers Sur., 1,267 ft. S of No. 1, in center of tract E and W.... Derrick.
Gulf Coast Drlg. & Prod. Co.'s No. 7-B Keystone Mills, A. Steele Sur., 1,070 ft. W of No. 6 and 469 ft. N of S line of lease ..... No report.
Gulf Coast Drlg. & Prod. Co.'s No. 8-B Keystone Mills, A. Steele, 3,771 ft. from E line, 467 ft. from S line.. Derrick.
Harrison & Abercrombie's No. 5 Massey, John Massey Sur., 500 ft. from S line in center of tract E and W.. Comp. 60 bbls. per hour; 1/2-in. choke, 5,075 ft.
Hi-Grade Oil Co.'s No. 2 South Tex. Dev. Co., T.&N.O. Sur. No. 5, 345 ft. from W line, 234 ft. from S line of lease ..... Comp. 75 bbls. per hour; 1/2-in. choke, 5,085 ft.
Houston Oil Co.-Tide Water Oil Co.'s No. 3 Dobbins, Ransom House Sur., 425 ft. from N line, 2,549 ft. from W line of lease ..... Drlg. shale 3,273 ft.
Houston Oil Co.-Tide Water Oil Co.'s No. 6 Hamman, C. B. Stewart Sur., 600 ft. from S line and 1,186 ft. from W line ..... T.D. 5,132 ft; cmtd. csg.
Humble O. & R. Co.'s No. 12-A Cartwright, John Davis Sur., 512 ft. from S line, 300 ft. from E line of lease Sand 5,095 ft.
Humble O. & R. Co.'s No. 1 Dewitt, C. A. West Sur., center of Lots 66, 67, 78 and 79 ..... T.D. 5,139 ft; comp. 100 bbls. per hr.; 1/2-in. choke.
Humble O. & R. Co.'s No. 11 McCoy, Ransom House, 1,300 ft. from N line, 466 ft. from E line ..... Sand 5,100 ft; cmtd. csg.
Humble O. & R. Co.'s No. 23 Moore, 466 ft. S of center of N line of Lemuel Smith Sur. ..... Drlg. shale 4,855 ft.
Humble O. & R. Co.'s No. 2 A. Moorehead, Treviathan Sur., 933 ft. W of No. 1 ..... Comp. 80 bbls. per hour; 1/2-in. choke, 5,141 ft.

Humble O. & R. Co.'s No. 34 South Tex. Dev. Co., Theo. Slade Sur., 933 ft. NE of No. 33 ..... Sand 5,055 ft.
Humble O. & R. Co.'s No. 1 Stream, C. A. West Sur., 720 ft. N, 630 ft. E of Navarro Oil Co.-Standard's No. 1 Meyers ..... Drlg. shale 4,995 ft.
Humble O. & R. Co.'s No. 3 Wiggins & Athey, L. Smith Sur., 500 ft. from SW line, 300 ft. from SE line.... T.D. 1,273 ft; cmtd. 10-in. csg. 1,270 ft; standing.
W. M. Massie's No. 4 Hooper, F. Hooper Sur., 2,404 ft. from N line in center E and W ..... Drlg. shale 2,985 ft.
Navarro Oil Co.'s No. 1-B House, W.C.Ry. Sur., Sec. 14, 675 ft. from W line, 330 ft. from S line of tract.. Comp. 95 bbls. per hour; ½-in. choke, 5,125 ft.
Southern Liberty Oil Co.'s No. 1 Brown, W.C.C. Lynch Sur., center of 2.75-ac. tract ..... Comp. 70 bbls. per hour; ½-in. choke, 5,125 ft.
Standard Oil Co. of Kansas' No. 1-B Madeley, Ransom House Sur., 400 ft. from N line, 300 ft. from W line ..... Sand 5,120 ft.
Standard Oil Co. of Kansas' No. 6 Smith & Ratcliff, W. C. Rhodes Sur., 316 ft. from S line, 290 ft. from E line ..... Coring sand 5,085 ft.
Strake Pet., Inc.'s No. 3 Etheridge, S. H. Bryan Sur., 712 ft. W of No. 1, and 467 ft. from N line ..... Comp. 90 bbls. per hour; ½-in. choke, 5,116 ft.
Strake Pet., Inc.'s No. 1 Geo. Hamman, C. B. Stewart Sur., 467 ft. out of SW cor. ..... No report.
Sun Oil Co.'s No. 5 Foster, John Bricker Sur., 933 ft. S of No. 1 and 467 ft. from E line ..... Comp. 100 bbls. per hr.; ½-in. choke, 5,140 ft.
Sun Oil Co.'s No. 1 Clark, Wilson Strickland Sur., 409 ft. from N line, 467 ft. from E line ..... Drlg. shale 4,581 ft.
Sun Oil Co.'s No. 3 B. E. Jones, Strickland Sur., 409 ft. from S line, 467 ft. from E line ..... Drlg. shale 4,703 ft.
Sun Oil Co.'s No. 5 Stewart, J. M. Real Sur., 630 ft. N of No. 1, and 467 ft. from E line ..... Drlg. sand 5,080 ft.
Sun Oil Co.'s No. 5 South Tex. Dev. Co., T.&N.O. Sur. No. 5, 164 ft. from N line in center E and W ..... Comp. 1,500 ft.
The Texas Co.'s No. 3 Dudley, C. B. Stewart Sur., 466 ft. out of NW cor. of lease ..... Spudded.
The Texas Co.'s No. 4 Dudley, C. B. Stewart Sur., 466 ft. out of SE cor. of lease ..... Rigging up.
The Texas Co.'s No. 6 Dudley, C. B. Stewart Sur., 1,178 ft. W and 466 ft. N out of SE cor. of lease .... T.D. 5,107 ft; cmtd. 7-in. csg. 5,098 ft.
The Texas Co.'s No. 26 Moody, Ransom House Sur., S 2,293 ft. 75 deg. W and 1,236 ft. S 15 deg. W from NW cor. of lease ..... Comp. 75 bbls. per hour; ½-in. choke, 5,134 ft.
The Texas Co.'s No. 8 Rhodes, 330 ft. S of S line of C. A. West Sur., and 330 ft. W of W line of John Massey Sur. in W. S. Rhodes Sur. ..... Rig.
The Texas Co.'s No. 14 Rhodes, W. S. Rhodes Sur., 1,060 ft. from W line, 1,470 ft. from S line ..... T.D. 5,010 ft; drill pipe stuck.
Tide Water Oil Co.'s No. 3 Granger, T.&N.O. Sur. No. 14, 467 ft. from N line and 933 ft. E of No. 1..... Derrick.
Tide Water Oil Co.'s No. 8 Dean, W. C. C. Lynch Sur., 467 ft. out of SW cor. of lease ..... Coring sand 5,104 ft.
Tide Water Oil Co.'s No. 4 Krohn, S. H. Bryan Sur., 1,312 ft. from N line, 467 ft. from E line ..... T.D. 5,067 ft; cmtd. csg.

REFUGIO—REFUGIO COUNTY

United Prod. Corp.'s No. 1-A M. F. Lambert, 666 ft. from N line, 833 ft. from W line of Hews & Brown Sur. ..... No report.

WEST COLUMBIA—BRAZORIA COUNTY

The Texas Co.'s No. 5 Abrams ..... Tested S.W. 3,001 ft; pulling screen to deepen.

HUMBLE—HARRIS COUNTY

Rosenthall & Hefferman's No. 1 Westheimer, John B. Jones Sur., 73 ft. due W of Rio Bravo Oil Co.'s No. 1 Westheimer, Blk. 16 ..... Rigging.
The Texas Co.'s No. 22 House (W.O.), M. Owens Sur. ..T.D. 5,057 ft; cmtd. hole to 4,770 ft; sidetracked at 4,146 ft; drlg. sticky shale 4,208 ft.

PORT NECHES—ORANGE COUNTY

The Texas Co.'s No. 1 Orange Nat. Bank, 150 ft. out of NW cor of lease, Jacob Beaumont Sur. ..... Gumbo 1,260 ft; cmtd. 13⅜-in. csg. on bottom.

GRETA—REFUGIO COUNTY

E. H. Buckner's No. 1 J. M. O'Brien, 150 ft. S of N line of N. S. Crunk Sur. and 150 ft. NW of St. L.&B. M. R.R. ..... Rigging.
M. C. McGeehee's No. 1 O'Brien, 3,500 ft. W of most easterly E line and 3,150 ft. N of most southerly S line of E. H. Winfield Sur. ..... Derrick.
W. L. Pearson's No. 1 Wilson Heard, 11,760 ft. from N line and 1,000 ft. from W line of 960-ac. tract, M. J. Ximines Sur. ..... Rigging.
Joe E. Smith's No. 1 O'Brien, 1,500 ft. N of most southerly S line and 1,300 ft. E of most westerly E line of E. H. Winfield Sur. ..... Derrick.
Vidauri Oil Co.'s No. 1 Welder, 330 ft. S of N line of James T. McGrew Sur., and 700 ft. W of R.R. .... Derrick.

SOUTH LOUISIANA FIELDS

ASSUMPTION PARISH

Barnsdall Oil Co.'s No. 1 Williams, 330 ft. out of NE cor. Sec. 33-14s-14e ..... Drlg. 895 ft.

CALCASIEU PARISH

Union Sulphur Co.'s No. 1 Stout, 1,237 ft. N, 1,167 ft. W of SE cor. Sec. 36-8s-8w ..... Drlg. gumbo 3,473 ft.

CAMERON PARISH

Southern Sulphur Co.'s No. 1 Gulf of Mexico, 330 ft. S, 338 ft. E of SW cor. Sec. 29-15s-10w ..... Rigging up.
The Texas Co.'s No. 8 State-Calcasieu Lake, 14,355 ft. W, 3,270 ft. N of NE cor. Sec. 1-14s-9w ..... Derrick.

CAMERON MEADOWS—CAMERON PARISH

Bertrand-Sutton Oil Co.'s No. 1 School, 500 ft. W, 20 ft. N of SE cor. Sec. 16-14s-13w ..... Comp. flowing 40 bbls. fluid, 99% b.s.; ¼-in. choke, 1,400 lbs. pressure; sand 4,739-47 ft.

CHOCTAW—IBERVILLE PARISH

Standard Oil Co.'s No. 4 Myrtle Grove, 2,350 ft. S, 150 ft. W of NE cor. NW Sec. 52-8s-11e ..... No report.

DARROW—ASCENSION PARISH

Rio Bravo Oil Co.'s No. 1 Gumbel, 4,000 ft. W, 250 ft. S of NE cor. of S. Gumbel & Co. tract, Sec. 32-10s-2e.. Cored salt 6,052 ft; standing.

EVANGELINE PARISH

O'Brien Bros.' No. 1 Haas, 3,597 ft. W, 359 ft. N of SE cor. fractional N½ Sec. 23-4s-1w ..... No report.

GUEYDAN—VERMILLION PARISH

Pure Oil Co.'s No. 5 Alliance Trust Co., 525 ft. from N line, 580 ft. from W line of Sec. 34-11s-1w ..... Rig.
Pure Oil Co.'s No. 3 Mulvey, Sec. 34-11s-1w, 1,515 ft. from N line, 1,150 ft. from E line of tract ..... Salt 5,046-5,410 ft; P.B. to 4,550 ft.

LOCKPORT—CALCASIEU PARISH

Magnolia Pet. Co.'s No. 8 State Bayou D'Inde, 365 ft. E, 570 ft. N of SW cor. NE Sec. 8-10s-9w ..... Drlg. sand 2,066 ft.

HACKBERRY—CAMERON PARISH

Calcasieu Oil Co.'s No. 2 Hanssen, Sec. 14-12s-10w, 400 ft. W, 200 ft. S of No. 1 ..... Sand showing oil 6,076 ft; cmtd. 6⅝-in. csg. 6,064 ft.
Gulf Ref. Co.'s No. 11 Irwin, Sec. 12-12s-10w, 200 ft. N and 100 ft. E of No. 9 ..... No report.
Wilfred Lahey's No. 1 Aroux, center 2-ac. tract, Sec. 36-12s-10w ..... No report.
Massert & Cruse's No. 1 Sutton, 655 ft. S, 325 ft. E of NW cor. Sec. 26-12s-10w ..... Drlg. shale 4,620 ft.

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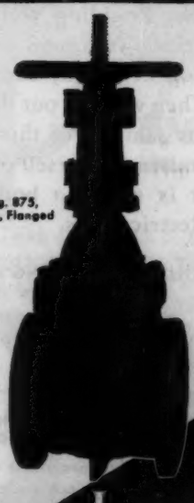

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Pop Oil Co.'s No. 1 Yount Lee, 3,996 ft. W and 100 ft. N of SE cor. Sec. 19-12s-10w ..... Spudded.
Union Sulphur Co.'s No. 6 Gulf Land-Humble Lease, Sec. 11-12s-10w, 245 ft. W and 210 ft. S of No. 4.... Drlg. shale 2,820 ft.

IOWA—CALCASIEU AND JEFF DAVIS PARISHES

Magnolia Pet. Co.'s No. 1 Bowman, 330 ft. out of NE cor. S½ NW Sec. 12-9s-7w ..... Spudded.
Magnolia Pet. Co.'s No. 1 Gillson, 330 ft. out of SE cor. NE Sec. 12-9s-7w ..... Drlg. hard sandy shale 6,581 ft.
Magnolia Pet. Co.'s No. 1 Willett, 330 ft. N and E out of SW cor. NW Sec. 7-9s-6w ..... Drlg. shale 4,862 ft.
Shell Pet. Corp.'s No. 4 Fontenot, Sec. 7-9s-6w, 330 ft. out of NW cor. of lease ..... Drlg. sticky shale 1,325 ft.
Shell Pet. Corp.'s No. 4 Heyd, 2,122 ft. W, 1,310 ft. S of NE cor. Sec. 12-9s-7w ..... Drlg. sandy shale 5,410 ft.

JEFFERSON DAVIS PARISH

Humble O. & R. Co.'s No. 2 Devilbiss, 1,350 ft. S, 250 ft. W of NE cor. Sec. 14-9s-4w ..... Drlg. shale and lime 6,355 ft.

JENNINGS—ACADIA PARISH

Yount Lee Oil Co.'s No. 12 Houssierre-Latrielle, Sec. 47-9s-2w, 300 ft. SW of No. 5 and 400 ft. NE of No. 4 ..... No report.

LA FOURCHE PARISH

V. N. Miller's No. 1 Sanbury, 150 ft. N, 100 ft. E of SW cor. Sec. 45-15s-15e ..... Abd. in anhydrite 1,620 ft.
Southern Sulphur Co.'s No. 1 State-Bay Marchand, 617 ft. E, 710 ft. S of SW cor. Sec. 20, in Sec. 29-23s-23e. Spudded.

PLAQUEMINES PARISH

The Texas Co.'s No. 8 Garden Island, 497 ft. E, 172 ft. N of SW cor. Sec. 107-23s-32e ..... Abd. in salt 2,500 ft.

PORT BARRE—ST. LANDRY PARISH

The Texas Co.'s No. 15 Botney Bay, 100 ft. out of most southerly NE cor. of lease, Sec. 4-6s-5e ..... Sand 3,384 ft.

STARKS—CALCASIEU PARISH

Union Sulphur Co.'s No. 1 Industrial, 1,916 ft. S, 2,354 ft. W of NE cor. Sec. 30-9s-12w ..... Drlg. gumbo 1,200 ft.

SWEET LAKE—CAMERON PARISH

Pure Oil Co.'s No. 11 Yount Lee, Sec. 13-13s-8w, 300 ft. S 66 deg. 42 min. from No. 9 ..... Sand 8,070 ft.; reaming to set 8¼-in. csg.

ST. BERNARD PARISH

Southern Sulphur Co.'s No. 1 State-Lake Borgne, 350 ft. N, 330 ft. E of SE cor. Sec. 33-13s-15e ..... Rig.
Southern Sulphur Co.'s No. 1 Lake Levy, 400 ft. S, 500 ft. N of SW cor. Sec. 28-13s-15e ..... Derrick.

SULPHUR—CALCASIEU PARISH

Union Sulphur Co.'s No. 727 fee, 75 ft. N, 1,270 ft. W of SE cor. SE NW Sec. 29-9s-10w ..... Drlg. sand 5,450 ft.
Union Sulphur Co.'s No. 730 fee, 465 ft. N and 536 ft. E of center of Sec. 29-9s-10e ..... Drlg. rock 2,500 ft.
Union Sulphur Co.'s No. 733 fee, Sec. 29-9s-10w ..... Drlg. rock 3,355 ft.

TERREBONNE PARISH

The Texas Co.'s No. 8 State-Caillou Island, 1,050 ft. S, 2,770 ft. E of NW cor. Sec. 20-23s-20e ..... Drlg. shale 3,635 ft.
The Texas Co.'s No. 8 State-Dog Lake, 4,067 ft. W, 1,877 ft. N of SE cor. Sec. 31-21s-16e ..... Drlg. sand 4,330 ft.
The Texas Co.'s No. 18 State-Lake Barre, 1,376 ft. W, 551 ft. S of NW cor. Sec. 30, in Sec. 38-21s-20e .... Salt 3,255 ft.

TEXAS

MISCELLANEOUS WILDCATS

BRAZORIA COUNTY

E. A. Anderson et al's No. 1 Reynold, Johnsen, Walker & Borden League, 5,502 ft. from W line, 850 ft. from W line of 122-ac. lease ..... Rigging up.
Danciger O. & R. Co.'s No. 2 Hunt, Pledger, 6,550 ft. from E line, 5,550 ft. from S line of W. Carson Sur... T.D. 6,884 ft; sand S.O. 6,861-81 ft.; cmtd. 7⅝-in. csg. 6,859 ft.

BRAZOS COUNTY

Adkins & O'Neill's No. 1 Clay, 1,150 ft. E, 5,750 ft. N of SW cor. of Walter Southerland Sur. ..... Shale 3,534 ft; S.D.; W.O.
F. H. Scott's No. 1 Klintworth, I. Curd Sur., 300 ft. NE line, 400 ft. SE line of tract ..... Spudded.

CHAMBERS COUNTY

Mills & Jones' No. 1 Gan, John S. Roberts Sur., 255 ft. W, 1,052.72 ft. S of NE cor. of 138-ac. tract .... Drlg. gumbo and lime 2,379 ft.

COLORADO COUNTY

Danciger O. & G. Co. and L. E. Hults' No. 1 C. L. Raver, B.B.B.&C. Sur., Sec. 1, 990 ft. out of SW cor. of 477-ac. tract ..... Shale 4,529 ft.; S.D.
Fabrigus & Poole's No. 1 Lake Side Irrigation, 1,500 ft. SE, 500 ft. NE NW cor. Patrick Real Sur. ..... T.D. 1,445 ft; cmtd. 12¼-in. csg. 1,150 ft.
Humble O. & R. Co.'s No. 1 John McShane, L.&G.N. Sur., Sec. 42, 466 ft. out of NE cor of tract ..... T.D. 6,277 ft; reaming.
McCulloueh Oil Co.'s No. 1 Kansteiner, Lelander Beason Sur., 300 ft. out of NE cor. of tract ..... Rig.
Plymouth Oil Co.'s No. 1 Ream, 330 ft. out of NE cor. of L.&G.N. Sur. No. 47 ..... T.D. 6,203 ft; set 20 ft. of 4½-in. screen, 1 joint of blank and 25 ft. of screen; flowed 344 bbls. in 20 hrs.; ½-in. choke; shut in, 1,100 lbs. on tubing and 2,000 lbs. on csg.
Weimar Oil Co.'s No. 1 H. T. Brandt, F. Pettus Sur., 250 ft. from N line, 250 ft. from E line of tract .... Drlg. surface 109 ft.

FORT BEND COUNTY

Taylor & DeCosta's No. 1 Naylor, 6,350 ft. N, 55 deg. E from SW cor. 653-ac. tract in Christman Sur. .... T.D. 7,014 ft; P.B. to test at 6,400 ft; tried to blow out.

GRIMES COUNTY

Koch et al's No. 1 Haferkamp, Samuel Fulton Sur., 335 ft. from S line, 347 ft. from E line of 180 acres.. Drlg. hard lime 2,375 ft.
Petroleum Southwest Co.'s No. 1 Greer, Pat O'Connor Sur., 200 ft. from W line, 400 ft. from N line of 150-ac. tract ..... Drlg. shale 2,246 ft.

HARRIS COUNTY

Burns, Ogg & Houston's No. 1 Kenning, H.&T.B. Sur., 330 ft. S line and 550 ft. W line ..... Derrick.
C. & C. Drlg. Co. and Mephail's No. 1 Erhardt, C. H. Delesdenier League ..... Drlg. rock 2,968 ft.
Hamilton et al's No. 1 Hargroves, W. C. Ry. Sur. No. 10, Blk. 1; 1,750 ft. from E line, 645 ft. N line .... Gumbo 1,000 ft; cmtd. 10-in. csg.
Jack Schultz et al's No. 1 Woodburn, 450 ft. NW of center of August Whitlock Sur. ..... Rig.
Sinclair Prairie Oil Co.'s No. 1 Kirmayer, Jesse Denton Sur., 357 ft. S, 681 ft. W of SE cor. Mrs. Willie Moore 200-ac. tract in Kirmayer 300-ac. tract ..... Drlg. shale 4,312 ft.

JACKSON COUNTY

The Texas Co.'s No. 1 Mitchell, S. F. Austin League, 450 ft. W, 450 ft. S of NE cor. of 63-ac. tract, Lot 25, Clement Subd. ..... Drlg. sand and shale 4,827 ft.
Turnbull et al's No. 1 Maurita, John Davis Sur., 330 ft. from W line of 200-ac. tract and 330 ft. N of center of G.H.&S.A. Ry. Sur. ..... Drlg. hard sand 5,205 ft.

JEFFERSON COUNTY

Elam & Denny's No. 2 Broussard, John McGaffey Sur.. Hard sand 3,440 ft; fishing.
W. J. Parker's No. 1 Rorck, A. Williams Sur. ..... Shale 2,310 ft; reaming.

LIBERTY COUNTY

C. G. Hamill's No. 1 McNair, Wm. Harris Sur., 2,700 ft. from E line and 525 ft. from S line of tract .... Drlg. shale 4,095 ft.
Yount Lee Oil Co.'s No. 1 E. W. Boyt, H.&T.C. Sur., Sec. 17, 300 ft. from S line, 2,440 ft. from E line of section ..... Drlg. hard shale 8,360 ft.

MATAGORDA COUNTY

Cockburn Oil Corp.'s No. 5 Hawkins, Shepherds Mott, 2,200 ft. SE, 1,800 ft. NE of W cor. Daniel McCarthy Sur. ..... Drlg. hard sandy lime 5,752 ft.

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ROEBLING

THE CUSTOM-MADE WELDING WIRE — FOR EXACTING WELDERS

Humble O. & R. Co.'s No. 2 Pierce est., 1,900 ft. NE, 466 ft. NW at right angles out of SW cor. of Pierce estate, same being NW cor. of W. S. and L. B. Hunt tract, W. Carson Sur. ..... Drlg. shale 7,067 ft.
United North & South Dev. Co.'s No. 1 Stoddard (W.O.), 150 ft. W, 645 ft. N of SE cor. of Blk. 53, Buckeye townsite ..... Set 100 ft. of 4-in. screen 7,860 ft.; swabbing.
United North & South Dev. Co.'s No. 1 Unit 6 (No. 2 Stoddard), 25 ft. each way out of NW cor. of Lot 19, Buckeye Townsite ..... T.D. 6,060 ft; milling out 5,555 ft.
United North & South Dev. Co.'s No. 1 Unit 14 (No. 1 Dr. Plotner), 1,210 ft. SE of No. 1 Stoddard and 136 ft. W of right of way of Collegeport branch of St. L.&B.M.R.R., Buckeye ..... Set 157 ft. of 5-in. screen 7,840 ft.; washing.
United North & South Dev. Co.'s No. 1 Unit 25, 1,335 ft. S, 1,000 ft. E of No. 1 Unit 6 ..... Drlg. hard lime and shale 4,610 ft.

POLK COUNTY

Boone, Clark & Boone's No. 1 Tex. Long Leaf, 2,835 ft. NW along NE line of D. B. McComb Sur. from E cor. and 1,188 ft. SW at right angles ..... Tested S.W. 4,403 ft.
Carl B. King Drlg. Co.'s No. 1 U. S. Alabama Indian Reservation, 3,248 ft. from SW line, 5,022 ft. from SE line of Thomas Colville Sur. ..... Shale 3,100 ft; washing to bottom.
Kirby Pet. Co.'s No. 1 Kirby Lbr. Co., 466 ft. out of NW cor. of James Stephenson Sur. ..... Drlg. shale 3,025 ft.
Roxie Oil Co.'s No. 1 Reed, A. Viesca Sur., 150 ft. out of NW cor. of 479-ac. lease ..... T.D. 4,311 ft; cmtd. 6¾-in. csg 4,239 ft.; drilled plug and tested S.W.
Dick Schwab's No. 1 Craig, Mary C. Swinney Sur., 330 ft. out of NE cor. of J. A. Munson 30-ac. tract .... Sand 4,322-28 ft.; 7-in. csg. 4,304 ft; drlg. plug.

TYLER COUNTY

Republic Prod. Co. and Houston Oil Co.'s No. 1,014-E (No. 2 Sterne fee), Adolph Sterne Sur., 1,300 ft. S, 400 ft. W of No. 1 Sterne fee ..... Drlg. shale 6,211 ft.

VICTORIA COUNTY

Stoneleigh O. & G. Co.'s No. 2 Terrell, R. Manchola Sur. No. 2, 660 ft. out of SE cor. of tract ..... Spudded.
The Texas Co.'s No. 6-A McFaddin, 5,600 ft. from NE line, 250 ft. from SE line of A. J. Gray ..... Gumbo 1,919 ft; cmtd. 9⅝-in. csg. 1,917 ft.
The Texas Co.'s No. 7 McFaddin, 6,600 ft. S 15 deg. W, 450 ft. N 75 deg. W at right angles from the NE cor. of the A. J. Gray Sur. ..... T.D. 1,176 ft; blowing gas and mud.

WALLER COUNTY

Trapshooter Reilly Oil & Royalty Co.'s No. 1 Menke, Justo Llende Sur., 600 ft. at right angles from NW line at 250 ft. at right angles from E line of 320-ac. tract ..... Drlg. shale 4,355 ft.

WASHINGTON COUNTY

Cline, Taylor et al's No. 1 Chadwick, Isaac Lee Sur., 500 ft. from N line, 1,000 ft. from E line of 320-ac. tract ..... S.D. 2,374 ft.

WHARTON COUNTY

Pure Oil Co.'s No. 1 Stewart, 3,419 ft. NW, 1,650 ft. NE of S cor. of Sec. 25, Morris & Cummings Sur. ..... Drlg. sand and shale 7,075 ft.

Wildcat Operations in Southwest Texas

(Continued from Page 52)

C. L. McLeary's No. 1 Mier, 600 ft. from SW line, 1,000 ft. from SE line of George Schenling Sur. No. 154. T.D. 860 ft; drlg.
Isham et al's No. 1 Lester ranch, 300 varas from N and E lines of Antonio Bandrand Sur., 8 miles NE from Johnson City ..... Spudded in.

CALDWELL COUNTY

Cargill et al's No. 1 Brown, 1,600 ft. from E line, 330 ft. from S line of C. E. Brown 112-ac. tract, Dillard Cooper Sur. ..... Rigging up.
De-Tex Oil Co.'s No. 1 Louis Rogers, 900 ft. from NE line, 400 ft. from SE line of 75-ac. tract in A. Floyd Sur. ..... Moving in rig.
E. L. Hope and Joe Cole's No. 1 Mike August, 150 ft. from NE line, 165 ft. from NW line of tract ..... T.D. 1,530 ft; drlg.

DE WITT COUNTY

L. G. Wade's No. 1 fee, 6 miles S from Yoakum ..... T.D. 1,400 ft; drlg.

DUVAL COUNTY

Brooklyn Oil Co.'s No. 1 G. W. Sutherland, 2,100 ft. from W line, 1,923 ft. from S line of Sur. No. 137, G.B.&C.N. R.R. ..... Spudded in.
Al Buchanan's No. 1 Foster, 150 ft. from N and E lines of N of S of Sur. No. 270 ..... Rigging up.
Clark & Miller's No. 1 R. Lopez, 150 ft. from N line, 330 ft. from W line of Sur. 141, S. C. I. Co., 8 miles SW from San Diego ..... Set surface csg.; W.O.C.
M. J. Coffey's No. 1 Parr, 591 ft. from W line, 270 ft. from N of NW cor. of Sec. 2, located in Sur. 27 ..... Rigged up.
Coronado Oil Co.'s No. 1 Wood-Welder, 1,980 ft. from W line, 990 ft. from N line of Sur. No. 311 ..... T.D. 2,308 ft; testing sand.
DeLange & Snider's No. 1 Sanches, 330 ft. from N and E lines of 80 acres in Blk. 35 of Sur. No. 197 ..... Spudded in.
Frank Gravis' No. 3 Schallert, 2,300 ft. from E line, 300 ft. from N line, Sur. 255 ..... T.D. 2,385 ft; drilled plugs.
Huff et al's No. 1 A. Roach 685 ft. from E line, 43 ft. from S line of Blk. 7, Sur. No. 457 ..... T.D. 260 ft.; spudded in.
G. G. Mortimer's No. 1 Peal, 330 ft. from S and W lines of Sur. No. 793 ..... T.D. 325 ft; drlg.
J. J. O'Hern's No. 1 Smith-Corkill, 2,300 ft. from NE line, 1,320 ft. from SE line of Sur. 491 ..... T.D. 2,802 ft; abd.
William B. Stewart's No. 3 Duval County Ranch Co., 300 ft. from E line, 330 ft. from W line of S half of SE. Sur. 363 ..... T.D. 182 ft; drlg.
Whisenant & Trenchard's No. 1 Duval County Land Co., 1,750 ft. from N line, 1,100 ft. from E line of Sur. No. 76 ..... T.D. 1,910 ft; drlg.
Whisenant & Trenchard's No. 2 Duval County Ranch Co., 500 ft. from N and W lines of E ½ of SE ¼ of Sur. 76 ..... T.D. 20 ft; set surface csg.
Windsor Oil Co.'s No. 1 Peters, 330 ft. from E line, 2,904 ft. from S line of W ½ of S (or 1,600 ft. to N 2,900 ft. to W of Sur.) No. 23 ..... Rigging up.
Wright & Wilson's No. 1 Wood-Welder, 6,150 ft. from N line, 7,200 ft. from W line of Sur. No. 102 ..... T.D. 150 ft; standing.

GOLIAD COUNTY

Gillett Oil Co.'s No. 1 Lackey & Weldon, 3,000 ft. NE of Humble test 3 years ago ..... Rigging up.

GUADALUPE COUNTY

J. E. Clark's No. 1 Fritz Drieboldt, 3,000 ft. from NW cor. and 1,900 ft. from N line of John Jones Sur. No. 1 ..... Moving in.

HIDALGO COUNTY

Carl & Johnston's No. 1 Doughty, 187 ft. from S and E lines of Lot 11, Blk. 5 of Subd. of Indios Ranch Sur. in N. Hidalgo ..... T.D. 2,410 ft; drlg.
Maxwell & Young's No. 1 King, 175 ft. from N and E lines of Lot 8, Blk. 16, Alamo tract ..... T.D. 125 ft; drlg.

JIM HOGG COUNTY

D. C. DeWitt's No. 1 A. G. Lopez, 3,475 ft. from W line, 425 ft. from N line of Sur. No. 108 ..... T.D. 1,650 ft; standing.
R. F. Feree's No. 1 Holbien, 150 ft. from N and W lines of Blk. 54, Sec. 9 of Holbien Sur. of Share 3 of Las Animas grant ..... T.D. 2,736 ft; testing.

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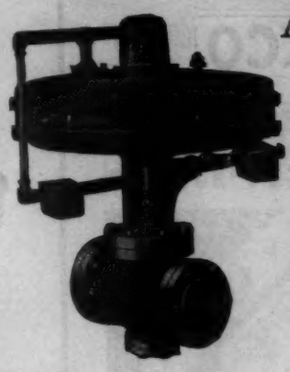
PRESSURE



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Seaton A. Barnes, Jr.'s No. 1 R. Helbien, 220 ft. from W line, 340 ft. from S line, of Blk. 54, share 3, Los Animas tract ..... T.D. 495 ft; drlg.

KENDALL COUNTY

H. W. Martin's No. 1 Houston, in F. Wright Sur. ..... T.D. 585 ft; set csg.

KERR COUNTY

J. E. Anderson's No. 1 J. D. Witt, 1,320 ft. from N line, 1,320 ft. from W line of Sec. 1,923, in Hamilton Sur., 4 miles S of Center Point ..... T.D. 1,206 ft; drlg.

Eastland Oil Co.'s No. 1 Love, 1,100 ft. SW of Evans & Gant's No. 1 Love ..... T.D. 1,310 ft; drlg.

KLEBERG COUNTY

Harry Clark's No. 1 V. J. Kivlin, 360 ft. from E line, 400 ft. from S line of Sec. 38, Blk. 8, Kleberg Town & Improvement Co. Sur. ..... T.D. 1,600 ft; S.D.

Harris et al's No. 1 Dennett, 660 ft. from S line, 760 ft. from E line of Blk. 7, Sec. 38, Kleberg Town & Improvement Co. Sur. ..... T.D. 3,100 ft; S.D.

LA SALLE COUNTY

W. H. Wallace's No. 1 H. C. Yeager, 150 ft. from S and E lines of Sur. No. 95 ..... Set 60 ft. surface csg.

LAVACA COUNTY

Plymouth Oil Co.'s No. 1 Fehrenkamp, SE cor. of 202.8-ac. tract in Moses Mitchell Sur. ..... Moving in tools.

LEE COUNTY

Paton Bros.' No. 1-B Turner, 424 ft. from NW line, 375 ft. from NE line of 51.9-ac. tract in David Hudson Sur. ..... T.D. 6,106 ft; standing.

LIVE OAK COUNTY

Argo Royalty Co.'s No. 1 Nichols, 6,400 ft. from SW cor. and 1,150 ft. NE at right angles in Simeon Ryan Sur. ..... Spudded in; first reported as Cohagen et al's.

Jacob, Buzzini & Pickett's No. 1 J. W. Griffith, 150 ft. N of road and on the McMullen-Live Oak County line, T. Sparks Sur. No. 16 ..... T.D. 927 ft; comp. est. 20 bbls.

McMULLEN COUNTY

Boysen & Hotchkin's No. 1 Hagist, 1,650 ft. from W line, 990 ft. from N line of 160-ac. tract in G. B. Kinney Sur. No. 8 ..... Moving in tools.

C. W. Gillette's No. 1 J. Dickinson 100 acres, 740 ft. from NW line, 750 ft. from NE line in Blk. B-29, A. Barrera Sur., 5 miles W from Whitsett ..... T.D. 694 ft; bailed dry; drilling deeper.

C. B. Loftin's No. 3 R. H. Brown, 5,283 ft. from N line, 924 ft. from E line of 3,006-ac. tract in Sur. No. 64 ..... T.D. 768 ft; swabbing a little oil.

C. R. Pope, Inc.'s No. 1 A. C. Miles, 300 ft. to E line, 2,375 ft. to S line, Sur. 149 ..... T.D. 2,100 ft; drlg.

S. R. C. and Sinclair Prairie's No. 3 LaChusa, 330 ft. from S and E lines of NW Sec. 36, Sur., 2 miles E from No. 1 ..... T.D. 1,725 ft; drlg.

Shumway et al's No. 1 Wulf, Sur. 4 miles SE from No. 2 Shiner, 1,730 ft. from S line, 167 ft. from W line of Steinhardt Sur. No. 190 ..... Rigged up.

SAN PATRICIO COUNTY

George W. Scruggs' No. 1 Collins, 1,040 ft. from NE line, 700 ft. from SE line of Blk. 36, E. J. McGloin Sur. ..... T.D. 2,756 ft; changing to heavier rig.

STARR COUNTY

B.&B. Oil Co.'s No. 1 Crown Brick & Tile Co., 1,800 ft. S of State Highway No. 4 and 580 ft. from W line of Porcion 87, near La Puerta ..... T.D. 4,532 ft; set csg.; waiting on cmt.

Chiquita Oil Co.'s No. 1 Starr County Cattle Co., 341 ft. from W line, 271 ft. from S line of Share 40, Partition of Porcions 88 and 89 ..... T.D. 618 ft; drlg.

F. R. Cooper's No. 1 J. M. Martinez, 150 ft. to S and E lines of A.B.&M. Sur. No. 195 ..... T.D. 2,221 ft; drlg.

F. Davenport's No. 2 fee, 660 ft. from SE line, 250 ft. from SW line, Sur. 32 of C. O. Newman Subd. of El Benadito grant ..... T.D. 500 ft; standing.

Dawson et al's No. 5 Margo, 1,000 ft. from W line, 5,500 ft. from S line of Share 3-B, Por. No. 70, jurisdiction Mier ..... T.D. 500 ft; standing.

E. H. Stickney's No. 1 H. Gonzales, 300 ft. from E line, 3,166 ft. from S line of H.E.&W.T. Sur. 339.... T.D. 1,100 ft; drlg.

Goodwain & Yantis' No. 1 Seabury, 150 ft. from S and W lines of Sec. 107, Share No. 1, Porcion No. 107.... T.D. 745 ft; drlg.

TRAVIS COUNTY

F. Fuch's No. 1 Rummell, 300 ft. to S line, 150 ft. to E line of 169-ac. tract in Peter Cartwright Sur. ... T.D. 65 ft; S.D.

UVALDE COUNTY

Frank A. Brown's No. 1 J. A. Milliken, 1,800 varas from W line which is Sabinal River, and 108 varas from S line of Antonio Cruz Sur. No. 333 ..... T.D. 100 ft; drlg.

Evans & Thompson's No. 1 Farris, 400 ft. from S and W lines of 535-ac. tract near center of John J. Hammond Sur. ..... T.D. 300 ft; changing rigs.

WEBB COUNTY

Edwin M. Jones' No. 1 Callaghan, 1,650 ft. from E line, 990 ft. from S line of Sec. 603 of B.S.&F. Sur., 13 miles E from Callaghan Switch ..... T.D. 4,115 ft; abd.

Edwin M. Jones' No. 2 Callaghan, 330 ft. from S and E lines of C.C.S.D.&R.G.N.G. R.R. Sur. No. 1,211.... Rigging up.

J. W. Edwards' No. 1 Volpe Bros., 150 ft. from E line of NE SW Sec. 17, Blk. 2, C.C.S.D.&R.G.N.G. Sur., 30 miles SE from Cactus ..... T.D. 625 ft; drlg.

J. W. Edwards' No. 1 Boltz, 1,170 ft. from S and E lines of Sec. 58, Blk. 2, C.C.S.D.&R.G.N.G. Ry. Sur... Rigging up.

Gibson et al's No. 1 Smith, 150 ft. from NE line, 300 ft. from NW line of Blk. 5, Sur. No. 1,102..... T.D. 2,204 ft; fishing.

O. W. Killam's No. 1 V. Pena, Sur. Ratones ranch Dolores Subd. Borrego grant ..... Spudded in.

Will Ohlhausen's No. 1 Moses Jones, 273 varas from E line, 516 varas from S line of 100-ac. tract in Sur. No. 1,640 ..... T.D. 850 ft; drlg.

Seagraves & Salsbury's No. 2 Gates, 330 ft. from N and E lines of SE Sec. 64, Blk. 1 of C.C.S.D.&R.G.N.G. Sur. ..... T.D. 1,556 ft; drlg.

Shankle & Roche's No. 1 W. W. Stell, 660 ft. from N and W lines of NW NW of No. 37 Sur., 11 miles N from Mirando City ..... T.D. 2,000 ft; drlg.

WILSON COUNTY

Sexton Pet. Co.'s No. 1 Joe Gutzeit (1,033-ac.), 150 ft. from W line, 150 ft. from S line of road of F. Flores No. 18 Sur. ..... T.D. 175 ft; drlg.

ZAPATA COUNTY

Hamilton, Brower & Crow's No. 1 Slator, 2,111 ft. from SW line, 1,950 ft. from SE line of Blk. 1, Subd. of Slator ranch in J. V. Borrego grant ..... T.D. 1,278 ft; drlg.

O. W. Killam's No. 1 V. Pena, 1,350 ft. from N line, 4,790 ft. from W line of Ratones ranch subd. of Borrego grant ..... T.D. 450 ft; drlg.

Sarah Poppas' No. 1 Juan V. Cueller, Jr., 150 ft. from NE and SE lines of Blk. 3, Sur. 3 of Poppas Subd. of Por. 34 ..... T.D. 525 ft; drlg.

A. C. Savoy et al's No. 1 Flores, 150 ft. from NW line, 306 ft. from NE line of Blk. 8, Share 1 of P. A. Richer Subd. of Porcion No. 86 ..... T.D. 2,395 ft; testing sand.

Stevens & Brown's No. 1 Alexandro Garcia, 660 ft. from SW line, 660 ft. from NW line of Blk. 6, Stevens & Brown Subd. of W 700 acres, Charco Redondo grant, A. Garcia tr. 16 miles SE of Zapata ..... Spudded in.

A. H. Wray's No. 1 Gopher Trust Est., in Fullerton Subd. of Share 8 of J. V. Borrego grant ..... T.D. 370 ft; reaming to test.

ZAVALA COUNTY

Zavala O. & G. Co.'s No. 1 Gates, 1,320 ft. from N line, 1,320 ft. from E line of Hooper & Wade Sur. No. 13.. T.D. 5,503 ft; resuming drlg.

Southwest Texas Proven Areas

Week Ending June 3

HILBIG POOL—BASTROP COUNTY

Company, well, farm name, section and block—	Remarks:
Humble O. & R. Co.'s No. 3 Wilhelm, 1,370 ft. from SW line, 245 ft. from NW line of 119.5-ac. tract in S. Wolfensbarger Sur.	T.D. 2,471 ft; set csg.

RIDDLE POOL—BASTROP COUNTY

Marts & Beavens' No. 2 Riddle, 400 ft. from NW line, 2,300 ft. from SW line of John Maxmilian Sur.	T.D. 2,149 ft; drlg.
Ogden & Reed's No. 1 Talley, 150 ft. from NW line, 1,350 ft. from SW line of John Maxmilian Sur.	T.D. 1,410 ft; drlg.

TULETA POOL—BEE COUNTY

Grisham et al's No. 1 Rapp & Hatch, 1,700 ft. from N line, 3,640 ft. from E line, Sec. 13 of Ragsley's Subd. of Uranga grant	Spudded in.

ECKERT POOL—BEXAR COUNTY

J. F. Harrison's No. 1 F. Gembler, 150 ft. from NW line, 460 ft. from NE line of 88-ac. tract in J. Montes Sur.	Spudded in.

NORTH GOVERNMENT WELLS POOL—DUVAL COUNTY

Central Producers, Inc.'s No. 7 Tuck & Johnson, 330 ft. from S and W lines of SE SW of Sur. No. 42	Rigging up.
Hester Bros.' No. 1 fee, 330 ft. from S and E lines of NE of Sur. No. 47	Rigging up.
Navarro Oil Co.'s No. 7 Hahl, 660 ft. from N of No. 6, 330 ft. from W line of Sur. No. 360	T.D. 2,290 ft; comp.; badly cut oil flowing into pits.
Navarro Oil Co.'s No. 7 Hahl, 990 ft. from S and E lines of W½ of Sur. No. 360	T.D. 800 ft; drlg.
Southwest Drlg. Co.'s No. 9 Wendt, 990 ft. from S and E lines of SE of Sur. No. 43	Rigged up; waiting for wtr.
Sun Oil Co.'s No. 2 Welderkehr, 1,650 ft. from S line, 330 ft. from E line of Sur. No. 359	T.D. 2,267 ft; comp. 14 bbls. hrly; ¼-in. choke.
The Texas Co.'s No. 5 Wendt, 990 ft. from S and E lines of N ⅝ of NW¼ of Sur. No. 42	T.D. 1,660 ft; drlg.

SARNOSA POOL—DUVAL COUNTY

Sarnosa Oil Corp.'s No. 7 Weil, 590 ft. SE of No. 6	T.D. 2,444 ft; P.B. to 2,435 ft; W.O.C.
Sun Oil Co.'s No. 3 Cano, 330 ft. from NE and SE lines of Sur. No. 576	Derrick.

PETERS POOL—DUVAL COUNTY

Shasta Oil Co.'s No. 4 Peters, 990 ft. from E line, 330 ft. from S line of Strip Sur. No. 65	Spudded in.

SANDIA POOL—JIM WELLS COUNTY

Crude Oil Royalty Co.'s No. 1 Allen, 150 ft. from N and E lines of Blk. 2, Subd. of Wade ranch	T.D. 2,648 ft; set csg.

JACOB POOL—McMULLEN COUNTY

Loma Oil Co.'s (Jacob, Buzsini & Pickett) No. 12-A Jacob, 1,212 ft. from N line, 571 ft. from E line of W. H. Jacob Sur. No. 19	T.D. 673 ft; drlg.
Longhorn Oil Co.'s No. 2-A C. T. Lark, in E. W. B. Scrugham Sur.	T.D. 1,020 ft; recmtng. csg.

KING POOL—NUECES COUNTY

John F. Camp's No. 1 King, 150 ft. from N and W lines of E½ of Sec. 29, of Richard King Subd.	Rigged up.

SAXET FIELD—NUECES COUNTY

C.N.T. Co.'s No. 1 L. M. Vance, 330 ft. from E line, 1,320 ft. from S line of 255-ac. tract in Sur. 402	T.D. 5,012 ft; S.D.
Gibson Oil Corp.'s No. 2 Rand Morgan, 1,320 ft. from N line, 330 ft. from E line of lease	T.D. 5,180 ft; S.D.
Houston Oil Co.'s No. 1 McGregor	T.D. 4,874 ft; running tubing.
Gulf Port Oil Co.'s No. 3 Frank Bliss, 1,699 ft. to N line, 350 ft. to E line of 235-ac. tract in J. W. Stevens Sur. No. 406	T.D. 5,616 ft; no report.
Gulf Port Oil Co.'s No. 8 Humphreys, 115 ft. from N line, 330 ft. from W line of lease (8 offset to No. 1 Gibson, Rand Morgan Sur.)	T.D. 5,006 ft; S.D.
Gulf Port Oil Co.'s No. 1 Rand Morgan, 330 ft. from N and E lines of 30-ac. lease	T.D. 4,905 ft.; S.D. for repairs.

MATHIS POOL—SAN PATRICIO COUNTY

Geo. W. Scruggs' No. 1 Collins	T.D. 2,756 ft.; changed to heavier rig.

LOS OLMOS POOL—STARR COUNTY

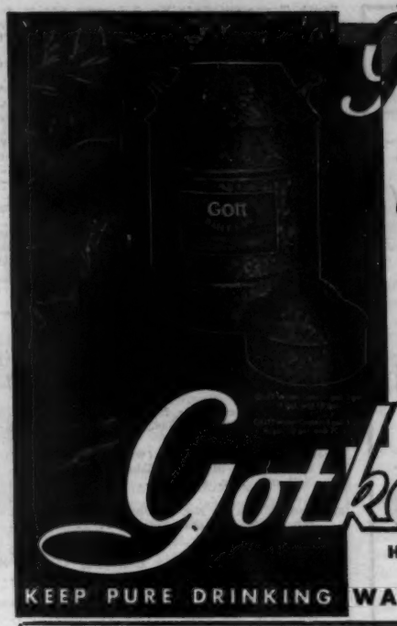
Hooks & Weaver's No. 15 Kelsey Bass, 200 ft. from W line, 150 ft. from S line, NW SE Sec. 6, Pors. 75, 76, 77, jurisdiction Camargo	T.D. 1,852 ft; drlg.
Hooks & Weavers' No. 14-A3 Kelsey Bass, 300 ft. from W line, 250 ft. from S line of E 30 acres of NE SW Sec. 6, Pors. 75, 76, 77, Camargo	Drlg. 1,268 ft; moving in larger rig.

RIO GRANDE CITY POOL—STARR COUNTY

O. V. McIntyre's No. 1 Hinojosa, 120 ft. from E line, 930 ft. from N line of Share 36 "A." Porcion 30, Sur., jurisdiction Camargo	T.D. 1,380 ft; no report.

LAUREL POOL—WEBB COUNTY

Cole, Wise & Laurel's No. 3 Garcia-Villareal, 450 ft. from N line, 150 ft. from E line of Blk. 7, Sur. No. 1,100	T.D. 1,932 ft; drlg.
Montex Oil Co.'s No. 1 Laurel, 150 ft. from S and E lines of Blk. 4, Sur. No. 270	T.D. 290 ft; drlg.
Montex Oil Co.'s No. 1 Caltex Royalty Co., 450 ft. from N line, 150 ft. from E line of Blk. 12, Sur. No. 765	T.D. 1,620 ft; drlg.
Montex Oil Co.'s No. 1 Laurel, 150 ft. from NW and SW lines of Blk. 1, Sur. No. 719	Derrick.
Reward Oil Co.'s No. 1 Garcia-Villareal, 150 ft. from N and W lines of Blk. 6, Sur. No. 1,100	T.D. 2,213 ft; cored saturated sand.
Shankle & Newton's No. 1 S. Benavides, 330 ft. from S and E lines of Blk. 13, in No. 3,272 Sur.	T.D. 40 ft; set surface csg.; W.O.C.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UNDERGROUND WELL SURVEYING SERVICE

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South Texas Oil Co.'s No. 7 Laurel, 820 ft. from N and W lines of Blk. 13, Sur. No. 270 ..... T.D. 2,285 ft; in sand.
South Texas Oil Co.'s No. 7 Laurel, 820 ft. from N and W lines of Blk. 13, Sur. No. 270 ..... T.D. 850 ft; drlg.
Texas Unity Co.'s No. 1 Yeager, 1,325 ft. from N and W lines of A.B.&M. Ry. Sur. No. 52 ..... T.D. 1,112 ft; drlg.

MOCA POOL—WEBB COUNTY

Moca Oil Co.'s No. 4 Duval County Ranch Co., 810 ft. from N line, 120 ft. from W line of Blk. 32, Share 8, Zapata County School Land ..... T.D. 1,214 ft.; P.B. to 891 ft.
Will Ohlhausen's No. 1 Moses Jones, 275 varas from E line, 516 varas from S line of 100-ac. tract in Sur. No. 1,640 ..... T.D. 850 ft; drlg.

ESCOBAS POOL—ZAPATA COUNTY

Lefevre et al's No. 1 M. Garza Hrs., 330 ft. from NW and SW lines of Blk. 58, C. A. Douglas Subd., Zorro ranch, Comitas Grant Sur. ..... T.D. 1,806 ft; drlg.
The Texas Co.'s No. 28 Measles, 533 ft. from SE line, 16,681 ft. from SW line of Carrito Blanco grant .... T.D. 650 ft; drlg.

MIRANDO VALLEY POOL—ZAPATA COUNTY

J. W. Edwards' No. 1 R. Hinnant, 150 ft. from SE lines of Blk. 8, Sur. No. 116 ..... T.D. 150 ft; drlg.

Wildcat Operations in Louisiana-Arkansas

(Continued from Page 51)

Mrs. A. L. Ibach, tr.'s No. 1 Rambin, 350 ft. S and E. NW cor. NE NE Sec. 32-11-11 ..... W.O. 3,527 ft.

RAPIDES PARISH

Byers & Collingsworth's (was A. G. Beck et al's) No. 1 Hickman-Simmons Lbr. Co., 330 ft. S, 330 ft E, NW cor. Sec. 46-4-1e ..... Drlg. 1,605 ft.

RED RIVER PARISH

Edward & Clay's No. 1 Delta Pecan Co., 1,600 ft. N, 450 ft. E, SW cor. Sec. 37-13-11 ..... Show oil tested dry 2,457-61 ft.; drlg. 2,470 ft.

SABINE PARISH

R. T. Henderson's No. 1 Sistrunk, 450 ft. N, 150 ft. W, C, Sec. 9-9-13 ..... Showed oil; bailed dry 2,079 ft.; S.D.
C. D. Lee, tr.'s No. 1 Whitney, 330 ft. N and W, SE cor. NW NE Sec. 19-9-14 ..... Base chalk 2,197 ft; S.D.; W.O. 2,205 ft.

CONVERSE DISTRICT

Lambert et al's No. 1 Edwards, 300 ft. S and E, NW cor. SW NW Sec. 29-9-13 ..... Drlg. 3,274 ft.
H. C. Lessenger's No. 1 Bowman-Hicks, 330 ft. S, 330 ft. E, NW cor. Sec. 13-9-13 ..... Fishing D.S. 2,065 ft.

Arkansas

COLUMBIA COUNTY

C. W. Alworth et al's No. 1 W. D. King, SW cor. SE SW Sec. 14-17-20 ..... Rig up.

DESHA COUNTY

T. J. O'Hara's No. 1 Martin, NW cor. NW SE Sec. 3-8-1e ..... Began drlg. May 8; S.D. acct. of high wtr. and waiting for csg.; T.D. 140 ft.

HEMPSTEAD COUNTY

Kentucky O. & G. Co.'s No. 1 Leslie, NW cor. SW NW Sec. 21-9-26 ..... Derrick.

LITTLE RIVER COUNTY

American Portland Cement Co.'s No. 1 fee, 150 ft. S and E, NW cor. SW NE Sec. 21-13-32 ..... Coring anhydrite 2,415 ft.

MILLER COUNTY

J. T. Humphrey's No. 1 Grace, C SW SW Sec. 9-15-27... Cmtd. 10-in. 206 ft.
Tarkington et al's No. 1 Gibson, 1,980 ft. N, 660 ft. E, SW cor. Sec. 30-18-27 ..... Rigging up.

Mississippi

JONES COUNTY

Snow-Bloch Pet. Co.'s No. 1 Watson, 660 ft. W, 210 ft. S, center, Sec. 24-7-13 ..... Derrick.

LAMAR COUNTY

Lamar Oil Co.'s No. 1 Scott, NE NE Sec. 18-2n-14..... Rigged up.

SUNFLOWER COUNTY

Westbrook-Thompson Holding Co.'s No. 1 Richette, 300 ft. N and W, SE cor. SE NW Sec. 26-23-4 ..... Rig up.

East Texas

CASS COUNTY

T. H. Pardoe, operator's No. 1 S. A. Orr, in the G. W. Morris Sur., 300 ft. east of the W line of the G. W. Morris Sur., also the east line of the David Frazier Sur. ..... S.D. fuel, 2,160 ft.

Louisiana-Arkansas Proven Areas

North Louisiana

CADDO—BETHANY

Company, well, farm name, section and block— Remarks:
Tom Collins Pet. Co.'s No. 1 Gill & Lipscomb, 660 ft. N, 1,500 ft. E, SW cor. Sec. 17-16-16 ..... Derrick.

CADDO—BLANCHARD

Louana O. & G. Co.'s No. 1 Winters, 1,980 ft. N, 660 ft. W, SE cor. Sec. 4-12-16 ..... Drlg. 1,350 ft.

CLAIBORNE PARISH

Haynesville Partnership's No. 1 J. L. Garrett, 200 ft. S and E, NW cor. SW Sec. 25-23-6 ..... Drlg. 4,120 ft.

DE SOTO PARISH

P. B. Dyer's No. 1 B. F. Jenkins, SE cor. NW SW Sec. 35-13-12 ..... Began drlg. May 24; cmtd. 8-in. 917 ft; drlg. 975 ft.

MOREHOUSE PARISH

The Texas Co.'s No. 1 Sisson, 300 ft. N, 330 ft. E center Sec. 30-22-3 ..... Rigging up.
United Gas Public Service Co.'s No. 28 Crossett, 1,991 ft. E, 2,640 ft. S, NW cor. Sec. 27-21-4e ..... Derrick.

OUACHITA PARISH

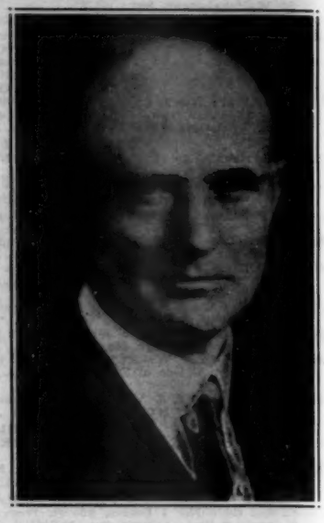
Inabent & Pipe's No. 2 Van Horn, Sec. 14-18-4..... Cmtd. 6-in. 2,192 ft.

SABINE PARISH—SWOLLE

Baird Bros.' No. 1 Trammell, 600 ft. N, 330 ft. W, SE cor. NE Sec. 30-8-11 ..... Rig up.
Bryant & Lucas' No. 1 Andries, 360 ft. S, 350 ft. W, NE cor. NW SE Sec. 15-7-11 ..... Began May 7; 10-in. 41 ft; S.D.
Byers et al's No. 1 Ervin & Bishop, 550 ft. E, 460 ft. N, SW cor. Sec. 16-7-11 ..... S.D. 2,460 ft.
J. C. Chandler's No. 1 Rains, SW cor. NW Sec. 14-7-11.. Derrick.
T. E. Kelly's No. 1 McClanahan, 1,000 ft. S, 330 ft. E, NW cor. SW NW Sec. 36-8-11 ..... Derrick pattern.
H. C. Mauiding's No. 1 DeLatin, Sec. 2-7-11..... Rig up.
Ben Merritt et al's No. 1 L. A. Cook, 536 ft. N, 333 ft. W, SE cor. Sec. 34-8-11 ..... Drlg. 2,312 ft.
E. F. Neely's No. 1 Garner, SE cor. SW NE Sec. 15-7-11.. Drlg. 2,500 ft.
Robertson Drlg. Co.'s No. 2 Hughes, 330 ft. S, 660 ft. W, NE cor. SW NW Sec. 36-8-13 ..... Cmtd. 6-in. 2,265 ft.
Scully & Beach's No. 2 Lafitte, 1,020 ft. S, 114 ft. E, NW cor. Sec. 12-7-11 ..... T.A. 3,636 ft.
C. H. Tuttle's No. 4 Byrd, 990 ft. S, 330 ft. E. NW cor. NW NW Sec. 7-7-10 ..... Derrick.

B. H. Stephens Resigns From Magnolia Board

DALLAS, Tex., June 5.—E. R. Brown, chairman of the board of directors of the Magnolia Petroleum Co., announced



B. H. STEPHENS

the resignation of B. H. Stephens, vice chairman of the board. Mr. Brown said the resignation was accepted so Mr. Stephens might devote his entire time to "his extensive private interests."

Benjamin Hugh Stephens was born in Lincoln County, Tennessee, but in his early boyhood removed with his parents to Tyler, Tex. After finishing high school in Tyler he went to work for the Cotton Belt Railroad and later was with the Trinity & Brazos Valley Railroad. He joined the sales department of the Magnolia Petroleum Co. in 1911, shortly after its organization and in 1912 became assistant to E. R. Brown, president of the company. In March, 1924, Mr. Stephens was elected director, vice president and general manager, and was also made a director of the Standard Oil Co. of New York, the parent company of the Magnolia Petroleum Co.

Rocky Mountain Area

(Continued from Page 57)

down at a reported depth of 2,490 feet. Santa Rita's No. 2 Blackfeet, SE NW Section 15-35-6w, is drilling at 1,765 feet.

Tarrant's No. 1 Williams, NW cor. Section 11-34-6w, is a new location and building rig. His No. 2 Haglund, Jr., C NW SE Section 13-34-6w, is drilling at 400 feet, and his No. 1 Hope, C SW SW Section 18-34-5w, is rebuilding rig.

Par Oil Co.'s No. 1 Haines, SE SE Section 2-34-6w, one of the first producers in the field from the Stewart sand, has drilled by tools and is making hole at 2,800 feet on top of the Darling sand. Same company's No. 2 Haines, SE cor. SW Section 2, is building derrick.

W. M. Fulton and others' No. 1 Haggerty, NE cor. Section 16-34-6w, is drilling at 2,500 feet, and Dakota-Montana Oil Co.'s No. 1 Haglund, Sr., SW NW NE Section 14-34-6w, is drilling at 2,100 feet. Alberta-Pacific Consolidated Oil Co.'s No. 2 Kiesel, SE cor. NW Section 11-34-6w, is rigging and ready to spud, and its No. 2 Matson, SE NE SW Section 14-34-6w, is drilling at 2,390 feet.

Liberty County

Northland Oil & Gas Co.'s No. 1 Yurman, C SE SW Section 32-33-5e, Liberty district, which has been standing for a year at 3,815 feet, is to be deepened to the Wilcox sand in the Ordovician. This sand is expected within the next 450 to 500 feet.

JAMES STROTHERS DIES

CHATHAM, Ontario, June 3.—James Strothers, at one time well known as an oil operator in the Petrolia Field, died recently at Detroit, aged 78.

FIELD PROBLEMS FROM READERS

Edited by Thomas F. Smiley

This department is conducted in order that men connected with the drilling, producing or transporting branches of the petroleum industry may obtain aid in solving problems that confront them in their work. Readers are invited to send questions freely. These questions will be placed in the hands of persons capable of answering them authoritatively, and the answers, based on the best available information, will be published.

Each question should give as much detail as possible, especially if it involves depth of sands, types of sands and operations on adjoining or nearby properties. The source of questions will be considered confidential, and only the initials of the sender will be published. Questions involving patented processes, intricate formulas or estimates of cost cannot be answered. If an immediate answer is important, one will be given by mail when the writer requests it.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or improved old ones.

Transporting Gasoline by Pipe Line in the United States

I am in search of some information concerning the use of pipe lines for transportation of gasoline in the United States. Some of the large refining companies have given me data concerning their own lines. You may be able to direct me to other sources of information or special articles in The Oil and Gas Journal.—J. T. M.

If you will look up the following articles published in The Oil and Gas Journal you probably will find they contain the information you seek relative to the advantages of transporting gasoline (or other petroleum products) by pipe line: "The Design of Gasoline Pipe Lines," by Stanley Learned, March 17, 1932; "Many Factors Considered in Selecting Proper Type of Equipment for Gasoline Pipe Line," by F. E. Richardson, September 29, 1932; "Efficient and Economical Operation of System Depends on Simplicity of Organization," by F. E. Richardson, September 29, 1932; "Phillips Pipe Line From Borger Carries Variety of Products," by T. F. Smiley, September 10, 1931.

Law of Equal Expectations and Its Application to Wells

The law of equal expectations is referred to in an article I have been reading and I do not understand what is meant by it. May I ask you to explain what the law of equal expectations means in the oil business? —S. S. L.

The law of equal expectations states that wells in the same pool producing the same quantity of oil, without regard to their relative ages, will have in the future similar decline curves, equal lives and approximately the same ultimate production. J. O. Lewis and C. H. Beal, in an A.I.M.E. paper on "Some New Methods of Estimating the Future Production of Oil Wells," express this law in these words: "If two wells under similar conditions produce equal amounts during any given year, the amounts they will produce thereafter, on the average, will be approximately equal, regardless of their relative ages."

In accordance with this law it would be assumed, for instance, that a well completed three years ago and now producing 150 bbls. of oil a day, will have the same production in the future as another well in the same pool and also producing 150 bbls., although completed only a month ago.

In his work on "Petroleum Production Engineering," L. C. Uren says concerning the application of this law:

"While many factors have a bearing on the future production of a well, it appears that the production of the well is an expression of the many complex variables involved. Some of these factors, such as the porosity and saturation of the sand, rock pressures and resistance to movement, are indeterminate, but their resultant is measured by the well's decline curve. If the conditions which have influenced past production remain unchanged in future time, the future production will approximately follow the projection of the decline curve. The decline curve is then in effect a graphical solution of the mathematical equation in which all of the physical conditions surrounding the well find expression.

"Though the truth of this law of equal expectations is now generally accepted, and while it has been checked by numerous applications in all of the American fields, it must be recognized that many of the variables influencing production of wells are subject to change by man, and it is therefore not always safe to assume that they will remain constant.

"Failure to keep the wells in good condition may cause a decrease in normal output. Intensive drilling may develop interference between wells which will influence future production. Influx of water may abruptly terminate the productive life of the well. Application of vacuum or compressed air to the wells will artificially prolong the productivity of wells and increase their ultimate production."

Literature on Subject of Storing Natural Gas in Depleted Fields

Is there any information available on the subject of storing gas in depleted gas fields, especially at depths of 2,000 feet or more and where the original shut-in pressures were 800 pounds or greater?—P. A. H.

There is not a large amount of literature on the subject of storing gas in depleted fields at depths of 2,000 feet or more. In addition to a bibliography which is being sent to you, it is suggested that you refer to an article by S. W. Meals in The Oil and Gas Journal of April 10, 1930, on "Storing Gas in Natural Reservoirs," and also to answers to questions which appear in this department in the issues of April 17, 1930, and May 21, 1930.

Substantial Progress Is Made in Conservation of Natural Gas

I do not see so much said now as I did a year or two ago about the importance of saving the country's natural gas instead of wasting it by blowing it into the air and in other ways. Has any worthwhile progress been made in this matter of eliminating waste of natural gas? Just what is being done in this vital matter?—H. O. E.

There is no question about worthwhile progress having been made in measures taken to reduce the waste of natural gas. Producers are studying the gas-oil-energy relationship not only to determine the efficiency of their wells as producers of oil, but also to plan programs designed to prevent excessive gas production when there is no commercial outlet for the gas and to retain it in the ground or return it to the formations for production in conformity with the best principles of oil and gas conservation.

Discussing losses of natural gas a report of the Federal Oil Conservation Board says:

"In considering gas produced unassociated with oil, the study of gas well deliveries and related problems is in the first rank of those upon which natural gas conservation depends. When the fundamental concepts and relationships have been determined and their application to field conditions is definitely understood it will be possible not only to prevent actual gas waste to the air and otherwise but also to plan definite gas depletion and gas storage programs with maximum recovery of gas and maximum efficiency in operation. The three objectives of a study of gas well deliveries are:

"1. The elimination of the wide open blowing of wells to determine the capacities of the wells to produce gas.

"2. The availability of gas at different back pressures.

"3. Thorough understanding of the fundamentals of gas flow through underground structures.

"Some years ago the general practice of all operators was to test their wells periodically by the 'open flow' method. Because the reliability of a better method had not been proved, prior to 1929, open flow tests were permitted on wells on public and Indian lands and several of the state conservation commissions still require these open flow capacity tests. One state, however, has definitely modified its orders regarding the making of open flow tests to conform with the pressure relationship method developed by the engineers of the Bureau of Mines.

"When a fundamental basis for controlling and gauging natural gas wells to determine the open flow capacities of the wells without blowing gas to the atmosphere was first proposed by the U. S. Bureau of Mines, working in co-operation with the Natural Gas Department of the American Gas Association, some engineers questioned the authenticity of the results. However, as data have been developed further, many natural gas engineers of nationally recognized standing have stated publicly that the principles of gauging gas well capacities as formulated in the initial published treatment of the subject are working out satisfactorily in the majority of wells.

"Under this co-operative research program, 656 tests have been made on 480 gas wells in Louisiana, Ohio, Oklahoma, Texas Panhandle and the Rocky Mountain area. Some idea of the savings which are being effected through the use of the back pressure method of gauging gas well capacities may be obtained from the following typical examples:

"In many areas of the Texas Panhandle it is necessary to blow the wells for at least 30 minutes, many of them for one hour or longer, before accurate readings of open flow can be obtained with a pitot tube gauge. Tests by the U. S. Bureau of Mines engineers on 221 wells in the Texas Panhandle by the back pressure method show an equivalent total open flow capacity of approximately 5,500,000,000 feet per 24 hours. If an actual open flow test had been made on these 221 wells, assuming a minimum of 30 minutes to obtain settled flow, more than 100,000,000 feet of gas would have been blown to the air merely to make these tests.

"Similar conditions were found in other areas where tests were made. In addition to the actual saving by the back pressure method of gas which otherwise would be blown to the air in open flow, the possible detrimental effect on the mechanical and sand conditions of the wells are eliminated.

"The work on this conservation problem is by no means complete but a proved method for gauging gas well capacities without attendant loss of gas is now available to the industry. Furthermore, knowledge of back pressure relationships has had other successful applications such as forecasting drilling requirements in 'dry' gas areas; determining the presence of cavings in wells; designing gathering systems; determining operating pressures; estimating costs of production; and judging the advisability of storing gas in sands."

Why Was It Called That?

SHOW

The word "show," as used in the oil field to mean an indication, symptom or trace, is as old as the industry itself, and in mining it goes back to a much more ancient time. The term was borrowed from the miner, who used it to designate an indication of a metal, as "a show of gold." The promptness with which it was adopted by oil operators is seen by looking over early petroleum literature. A writer in 1865 said: "For developing a new oil region, for instance the section about Fishkill, near the Hudson River, where there are numerous unmistakable indications of petroleum, wells could be put down at less expense and to better advantage by spring poles than with engines. The same rule will apply with equal force where there is a 'show,' but not, as in western Virginia, that absolute certainty of great oil wealth which awaits but the drill and pump to yield steady streams of petroleum to reward and enrich the operator."

NATURAL GAS DEVELOPMENTS

Carbon Black Exporters Organize Under Webb Law

Organization of Carbon Black Export, Inc., by leading American producers of carbon black is announced. The Webb Act, under which the project was consummated, permits American manufacturers to form associations for the stabilizing of export prices and establishing sales quotas.

Subscribers to the capital stock of the new company are Columbian Carbon Co., United Carbon Co., Godfrey L. Cabot, Inc., J. M. Huber, Inc., Century Carbon Co., Panhandle Carbon Co., Texas Carbon Industries, Inc., and Palmer Carbon Co. Carbon black will be handled for export of these producers, as well as for the output of all other producers who may join the corporation later. Subscriptions to stocks are allotted largely on the proportion of each company's sales to that of the entire industry.

The American carbon black industry virtually has a monopoly of the world's production. In recent years the tonnage sold abroad increased steadily despite the depression. Last year approximately 100,000,000 pounds, or 25 per cent more than in 1929, were sold in foreign countries for about $4,000,000. The export price is 3.75 to 4.25 cents a pound, while the domestic price is 3 cents. In the last few years the export price has declined about 50 per cent.

The new corporation, it is believed, will attempt to eliminate the competition in foreign countries that caused the sharp decline. Copper producers and several other American industries have in the past availed themselves of the provisions of the Webb Act to stabilize export prices and establish selling quotas among producers.

Carbon black is used largely in the automobile industry. Better grades of the product are used in printing inks and in lacquer.

BIG NAVY GAS KITCHEN

One of the largest single kitchen gas cooking installations in the country has been made for the U. S. Naval Training Station at San Diego, Calif. All cooking equipment is fired with gas fuel and it is said that $1,000 a year has been saved in cost of repairs, cleaning and painting because of soot and smoke and in depreciation of equipment.

This kitchen is a model of cleanliness and efficiency. It has saved time and increased comfort of working conditions. Three thousand meals are served from this kitchen daily, at a fuel cost of approximately one-tenth of a cent per meal. So satisfactory has been the installation and performance of the equipment that the kitchen of the U. S. Naval Hospital is now being similarly provided.

BILLINGS RATE CASE

The Public Service Commission of Montana has handed down its decision in the Billings Gas Co. rate case, holding the present rates reasonable. The commission computed the rate of return on the rate base as fixed by it to be 7.512 per cent. This investigation has been in progress about two years. Several public hearings were held in Billings, the final one having been held in September and October of 1932. At this hearing the utility company voluntarily submitted appraisals of its properties. An appraisal was also submitted by the engineer of the commission, who had spent a number of weeks in investigating the properties. Final legal briefs in the case were filed in November of 1932.

Production, Distribution and Marketing in Natural Gas Industry Analyzed

By S. W. MEALS

President Carnegie Natural Gas Co., Pittsburgh, Pa.*

A few years back it was almost impossible to drill wells to a depth of 5,000 to 6,000 feet if it required long strings of casing, let alone close the well in if the rock pressure was 2,250 pounds, as the material required to withstand this pressure was not manufactured. Metallurgical engineering and the pipe manufacturers, together with the tool and fitting manufacturers, have solved these problems for the oil and gas operators. Today wells have been drilled over 9,000 feet with the standard drilling tools and over 10,000 feet with the rotary outfit. The principle of standard tool drilling is the same today as when the Drake well was drilled in 1859. The improvement is in the material, size and construction of the joints on the tools. Fewer holes are lost or plugged in drilling than in former years, due to a better educated class of workmen and the improved equipment for recovering lost tools in the well. The use of cement or a mud-laden fluid to shut out caves or protect the walls of the hole are large factors in making it possible to drill to the depths attained today.

In pipe line construction, the engineer and pipe manufacturer have made it possible for the natural gas industry to transport its product through pipe lines across the continent, if it becomes necessary. Today, natural gas is being delivered to consumers more than 1,000 miles from the source of supply. Ten years ago we thought it was not practical or profitable to transport gas more than 200 or 300 miles. With seamless pipe and fewer but better couplings much higher pressure may be carried on the pipe lines than oldtimers ever dreamed was possible. Modern equipment and mechanical devices for handling, ditching and laying pipe lines today, together with the use of acetylene or electric weldings, have revolutionized our construction problems. Today a 24-inch line may be laid and put in service in about the same time as it formerly required to construct a 4 or 6-inch line. Pipe manufacturers have kept pace with the gas industry's rapid expansion. In this country there are mills capable of turning out 4 to 5 miles of pipe per day, in sizes from 12 to 24 inches. In fact, it required this speed to supply the oil and gas industries' requirements during the years 1928 to the latter part of 1931. The record year was 1930 with 20,731 miles of trunk lines constructed at a cost of more than $450,000,000. The 1931 figures show more than 15,248 miles of various kinds and sizes of pipe lines under construction and with expenditures equaling the 1930 figure. Of the 1931 construction 9,586 miles were natural gas lines, 3,400 gasoline lines and 2,262 oil lines.

This vast network of pipe lines will require large gas resources to warrant the enormous investment. However, with the proven area in the Panhandle of Texas, 150 miles long and 20 miles wide, the new developments in western Kansas, the discovery of new gas producing formations in deeper drilling in the Monroe Field in Louisiana, the production to be secured from the deep shale formation in Kentucky and southern West Virginia, and our own new developments in the Oriskany sand in Pennsylvania, the investor and public need not have any fear for the future of the gas industry.

Prolonging Small Wells

One of the important problems before the natural gas producer today is how to prolong the life of the many small wells. In the East especially, these are the backbone of the industry. There are 56,000 producing gas wells in the United States, not taking into account the many oil wells that produce large volumes of gas throughout the West and Southwest. In Pennsylvania there are 20,000 and in West Virginia more than 12,000. The average production per well per day in Pennsylvania is 23,000 cubic feet, and in West Virginia about 45,000. In California there are less than 100 wells, yet this state is second in the volume of gas produced and marketed. A larger part of the gas marketed in California is recovered from its oil wells. The same is true in parts of Texas and Oklahoma. However, Texas has 1,500 gas wells and Oklahoma 3,060. According to the Oil City Derrick, there have been 810,683 oil and gas wells drilled in the United States since the beginning of the oil industry in 1859, or an average of over 11,000 wells per year. The year 1920 has the record with 33,911; and 1926 is not far behind with 29,319. In 1931 there were a total of 1,985 gas wells completed, exclusive of California, and about 1,250 abandoned.

United States, Canada and Mexico are the only countries where utilities supply consumers natural gas. America is a gas-burning nation. We consume more gas than the balance of the world. In 1931 1,336,000,000,000 feet of natural and manufactured gas was marketed to domestic and commercial consumers, a productioh per capita of the total population of 10.25, compared with Great Britain, including Ireland, of 305,184,000,000 feet of manufactured gas, a production per capita of the total population of 6.87. Germany marketed to domestic consumers 128,211,000,000 feet, France 62,569,000,000, Japan 20,429,000,000 and the Dominion of Canada 38,000,000,000.

Tioga-Potter Development

You are more or less familiar with the development that has been going on in Tioga and Potter Counties in Pennsylvania and in southwestern New York. The largest wells ever drilled in east of the Mississippi River have been found in Tioga County, with a rock pressure of 1,685 pounds. Up to the latter part of 1932, 72 wells had been drilled in the Tioga Field; 38 produced gas and 34 were dry. The gas is found at an average depth of 4,000 feet. It is claimed that the total initial flow amounted to 610,000,000 feet. From the outlook in Potter County it is expected to produce a larger volume of gas than Tioga. The gas is found in the same formation as in Tioga, or in the Oriskany sand horizon, but at a depth ranging about 5,000 feet, and the rock pressure is 2,250 pounds.

When the wheels in industry start to turn, I believe we will see a greater demand for natural gas than we have had in the past and, therefore, a further expansion in pipe line construction. The results of the new development in Tioga

(Continued on Page 78)

*Before Third Pennsylvania Mineral Industries Conference, Petroleum and Natural Gas Section, State College, Pa. Published by permission of the Director of Mineral Industries Research.

Dominion Canadian Gas Subsidiaries Unaffected

CHATHAM, Ontario, June 3.—Announcement is made from Calgary that reorganization of Dominion Gas & Electric Co., announced in New York, will not affect the company's natural gas subsidiaries in western Canada. The western Canadian subsidiaries include Canadian Western Natural Gas, Light, Heat & Power Co. of Calgary and Northwestern Utilities, Ltd. of Edmonton, both of which H. R. Milner, K. C., of Edmonton, is president.

Reorganization of the Dominion Gas & Electric Co. was authorized in an order issued by the Court of Chancery in Wilmington, Del., to the receivers of American Commonwealth Power Corp. Dominion Gas & Electric Co. was a subsidiary of American Commonwealth Power Corp. formed to hold utility properties taken over from International Utilities Corp. in 1930. Under the reorganization plan a $3,000,000 issue of 6 per cent notes due June 1 to International Utilities Corp. is to be cancelled and control of the Canadian properties is to revert to International, which will control Dominion company.

O.N.G. HEARING

Hearing of a suit for receivership for the $58,000,000 Oklahoma Natural Gas Corp., filed by four stockholders, is under way in Federal District Court before Judge Franklin E. Kennamer at Tulsa.

Judge Kennamer refused to hear the suit until he had examined the plaintiffs, minority stockholders, and determined that their action was bona fide and not "for promotional purposes."

The plaintiffs, Clarence Caraker, Delle Stuart, H. B. Owens and Carl Owens, own less than $10,000 stock in the O.N.G. There also were given seven intervenors, some friendly toward the gas company.

TIRES AND CARBON BLACK

NEW YORK, June 5.—Sellers of carbon black find the demand excellent, a reflection of the improvement in tire production. Deliveries during May ran approximately 50 per cent ahead of the same month in 1932, according to several producers. To date there has been no change in prices, but a firmer market was anticipated.

FORT WORTH FRANCHISE

FORT WORTH, Tex., June 5.—Action on a proposed Fort Worth city ordinance which would require the Lone Star Gas Co. to pay an annual license fee of $15,000 for distributing its fuel here was deferred by the city council.

The purpose of the license ordinance, according to City Attorney R. E. Rouer, who drafted the measure, would be to reimburse the city for any expense that may be incurred in gas rate investigations. The ordinance was referred to the standing council committee on utility rate matters for study.

NEW GAS COMPANY

Equitable Gas Co. has been incorporated by Warwick M. Downing of Denver, Colo., who is said to represent a group of Oklahoma operators. The directors are Guy H. Pratt, Earl G. Colton, R. E. Aitcheson, D. M. Smith and Paul Holliman, all of Okmulgee, Okla. The new company has only 100 shares of stock and these have no par value. It is authorized to do a general gas business, handling and transportation and sale of both natural and artificial gas.

SHELL

Shop assembly of exchangers.

Vogt exchanger installation at the Waggoner Refining Co. Inc., Electra, Texas.

Manufacturers of: Heat Exchangers, Water Tube Boilers, Drop Forged Steel Valves and Fittings, Oil Refinery Equipment, Ice Making and Refrigerating Machinery.

Guarantees *Exceeded!!*

The Waggoner Refining Company, Inc., placed an order for two batteries of exchangers, each to cool 1200 barrels of fuel oil per day with 3000 barrels of crude per day.

The actual operating conditions are:

Fuel oil inlet temperature....690 deg. F.
Fuel oil outlet temperature ..250 deg. F.
Crude oil inlet temperature...160 deg. F.
Crude oil outlet temperature..365 deg. F.
20% of the crude oil vaporizes.

"Your performance guarantees have been exceeded and the exchangers are satisfactory in every respect" quoting the purchaser. Such records are typical of Vogt heat transfer equipment.

HENRY VOGT MACHINE CO.
INCORPORATED
LOUISVILLE, KY.
New York Philadelphia Chicago Dallas Cleveland

Vogt HEAT *Exchangers*

TECHNICAL QUESTIONS ANSWERED

By Charles K. Francis, Ph. D., Technical Editor

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible.

Inquiries must be signed but only the given initials will be printed. The source of the questions is considered to be confidential.

Questions requiring a dicussion of patents, the use of intricate formulas, extended computations, or cost estimates cannot be considered.

When the matter is of general interest the reply will be published within a reasonable time.

Diesel Fuel Oils for Engines and Aircraft Motors

What are the specifications covering the oils suitable for Diesel engine fuel? Are the fuels used in Diesel aircraft a distinct class of oils? Do you have the A.S.M.E. specifications for Diesel fuels?—C. E. A.

There appears to be some confusion regarding the character of the oil suitable for Diesel fuel. This may be due to several things, among which is the fact that the engines may vary from the light to the very heavy type, and that the recent development of the Diesel motor for use in aircraft and automobiles, makes use of a much lighter and more volatile oil than the kind used in the larger engine.

General specifications for Diesel engine fuel oil may be summarized:

Purity — Must be free from foreign matter, such as grit, fibers and acid.

Water—Shall not exceed 1 per cent.

Carbon residue—Not above 0.5 per cent.

Sulphur—Not more than 3 per cent.

Viscosity—Not above 82 seconds Saybolt Universal, at 100° F. for engines without oil heaters.

Flash—Not under 150° F. closed cup.

The detailed specifications for Diesel fuel oil may be obtained from Bulletin 323-B of the U. S. Bureau of Mines, now replaced by Federal Standard Stock Catalog. The Furol viscosities for these oils range from 100 at 77° F. to 300 at 122° F.

The oil used for motor cars and Diesel aircraft engines is entirely different as to weight and other properties. The important characteristic is the volatility, the initial boiling point ranging from 350° F. o 430° F. and final boiling point 490° F. to 600° F. The gravity is usually between 36° and 42° A.P.I.; flash, 150° to 175° F.; viscosity, S.U.V., at 100° F., 36 to 56 seconds; pour test, 30° below zero; sulphur, below 0.4; carbon residue not above 0.6 per cent; water and sediment, none. This is a high-grade distillate of the kerosene type.

The records available do not show that a specification for Diesel fuel oil has been standardized by the A.S.M.E. This society did investigate, in 1929-1930, two specifications, as follows, for "heavy duty" and "light high speed" engines.

	Heavy duty	Light high speed
Vis. at 100° F. Saybolt Univ., sec.	200 max.	45 min. 100 max.
Sulphur, per cent, max.	3	3
Conradson carbon per cent	4	1
Flash, °F. min.	150	150
Ash, max., per cent	0.08	0.02
Moisture and sediment, max., per cent	1.0	5.0

A discussion of these specifications, together with a study of the properties of special samples, may be found in the Transactions of the A.S.M.E., OGP-52-7, page 47.

Cars Registered and Daily Consumption of Gasoline

Can you tell us what has been the relation over the last five years of the gasoline consumed to the total number of cars registered? What is the average daily consumption per car?—R. E. J.

The total motor vehicle registrations include passenger cars, trucks and buses; the number of passenger cars being about 3,200,000 less than the total. The data covering gasoline consumed usually represent the quantity of gasoline shipped from refineries, of which it has been estimated 15 per cent is not used for automotive purposes. Other factors that are not considered are the volume of gasoline used for agricultural purposes and that consumed in the air craft industry.

The table giving data covering the years 1928 to 1932 inclusive is based on total vehicle registrations and the shipments of gasoline from the refineries.

AUTOMOTIVE VEHICLES AND GASOLINE CONSUMED

Year—	Vehicles registered	Gasoline consumed (bbls.)
1928	24,493,134	381,247,000
1929	26,501,443	429,224,000
1930	26,557,972	442,448,000
1931	25,993,896	435,666,000
1932	24,136,879	400,995,000

According to this statement the yearly consumption of gasoline per car may vary from 672 gallons, in 1928, to the maximum of 714 gallons, for 1930. The gasoline required per car per day is estimated from these figures, to average between 1.8 and 1.9 gallons.

The tax records do not show the same volume of gasoline consumed as shown in the above table for the reasons that any gasoline that is tax exempt and used for any other purpose than in motor vehicles is not included. There is a small addition to the quantity of gasoline due to the other substances, such as benzol, that is included in the taxed material; for this reason it is more accurate to designate the taxed product motor fuel.

The per car consumption, based on the number of vehicles registered, as shown in the table above, of taxed motor fuel is indicated in the table.

AVERAGE CAR CONSUMPTION OF TAXED MOTOR FUEL

Year—	Fuel taxed (gallons)	Car consumption per year (gallons)
1928	13,965,000,000	528
1929	14,755,500,000	557
1930	15,943,172,000	598
1931	16,628,880,000	640
1932	15,491,410,000	645

References: Reports of the American Petroleum Institute. Records of the U. S. Bureau of Mines. Automotive Industries, Statistical Issues, 1930 and 1933.

One Degree Benzene for Making Knock Testing Standards

What is the 1 degree benzene used for making a standard reference fuel for use when making knock tests and what is the best way to make the standards?—W. R. A.

Commercial, or technical, benzol is an impure product which may contain about 90 per cent benzene, and to distinguish this from the chemically pure material the word benzol is employed. The pure product has of course a fixed boiling point, 79.6° C., so when the term 1 degree benzene is used the C.P. substance is intended and the boiling point must be within 1 degree of the theoretical.

The primary standards, iso-octane and normal heptane, are expensive, selling for about $25 a gallon, so other fuels have been especially prepared. These are known as Reference Fuel A-2 and Reference Fuel C-6, the first being a gasoline having an octane number of 50, and the second a well stabilized gasoline having an octane number of 76. These sell for about $1 a gallon.

The directions for making the knock test contain the following:

"In terms of primary standards test conditions shall not be regarded as standard unless a blend by volume of 65 per cent iso-octane and 35 per cent of normal heptane is matched under the specified procedure by a blend by volume of 68 plus or minus 1 per cent 1 degree benzene with 32 plus or minus 1 per cent normal heptane when tested at an atmospheric pressure of 760 mm. and a compression ratio of approximately 5.3 to 1.

"Blends containing high percentages of benzene are particularly affected by the new testing conditions. This fact is useful in setting up a secondary standard for determining when engine conditions are in accord with the "Motor Method." A suitable standard is that a mixture of 50 per cent C.P. benzene and 50 per cent Standard Reference Fuel A-2 be equal to 78 per cent Reference Fuel C-6 and 22 per cent Reference Fuel A-2 (to plus or minus 3 per cent) when tested at a compression ratio of 5.5 to 1 and a barometer of 760 mm."

Terms Relating to Properties of Lubricating Oils Defined

The writer recently entered the oil business in a small way. I am very much interested in securing information which will enlighten me as to the terms cold test, color, fire and flash, viscosity at 100, viscosity at 210 and gravity. Perhaps you have some literature which will fully explain these terms.—G. A. A.

The terms mentioned are those commonly used in specifications for petroleum products, especially important when describing lubricating oils.

Gravity, as used in the United States petroleum industry is expressed by what are known as A.P.I. degrees, determined by the hydrometer method. The hydrometer is a weighted spindle-shaped instrument adjusted to float upright in liquids. Of course, the hydrometer will sink to a definite point according to the density of the liquid. The stem portion is marked off into whole numbers, called degrees and decimal parts of a degree, starting with 10, representing pure water and increasing as the liquid becomes lighter. A heavy fuel oil may have a gravity of 12.2° A.P.I., a lubricating oil 24.6° A.P.I., and a gasoline 60.3° A.P.I.

Flash and fire are temperature classifications, the flashpoint being the temperature at which the oil will evolve gas or vapor, which is detected by a simple flash or pop upon the introduction of a small flame into the vapor above the heated oil; at a somewhat higher temperature the oil once ignited will continue to burn, and this temperature is known as the fire test or firepoint.

Cold test and pourpoint usually mean the same thing, that is the temperature at which the oil will just flow. A technical difference is that the cold test indicates the temperature at which the liquid solidifies to the extent that it will not flow. This temperature is usually about 5° F. below the pourpoint.

The color of lubricating oils may be shown in several ways, the standard being the American Society for Testing Materials method, which is the same as that of the National Petroleum Association, where numbers are used for the viscous and nonviscous oils and letters for the heavy cylinder oils. No. 2 is a pale yellow, No. 6 dark red, and D a deep greenish red.

Viscosity as determined by the Saybolt Universal Viscosimeter is a figure representing the rate of flow in seconds, of a fixed volume of the oil at the temperature stated and is relied upon for judging the lubricating properties of oils to be used as lubricants. The viscosities at 100° F. are used for the oils that flow rapidly (nonviscous and low viscosity neutrals), and the high viscosity oils are tested at 210° F.

Market Quotations for Petroleum Products Exclusive of Taxes

Refering to the section of The Oil and Gas Journal devoted to refinery and crude prices, will you be good enough to inform me of the products exported that are subject to excise taxes and how much are such taxes? Are the export prices coming under this heading exclusive of these taxes or not?—A. H. D.

There are no taxes collected on export shipments of crude oil or petroleum products either by the United States or by the states from which the oil is produced. Some of the states require the producer to pay a tax on the petroleum produced. This tax is a production expense and is not added to the market price. All price tables, as published in The Oil and Gas Journal, are exclusive of local taxes.

The several states, some cities and the United States collect local taxes on gasoline and lubricating oil sold and some of the oil-producing states exact a production tax.

The fundamental principle involved in collecting taxes on gasoline and lubricating oil in the United States is that the money shall be used for the building and upkeep of the public roads. When gasoline is not used in a motor vehicle which operates on the streets and highways, it is usually not subject to tax.

PERSONAL PARAGRAPHS

H. A. Thomas, of The Texas Company, is on a visit to Europe.

• • •

Edward W. Scott is now with the Union Oil Company and is making his headquarters at Maywood, Calif.

• • •

Francis Hodgkinson, consulting engineer for the Westinghouse Company, has sailed from New York for Europe.

• • •

Victor Ross, vice president of Imperial Oil, Ltd., has been appointed honorary treasurer of the Federation for Community Service of Toronto.

• • •

J. A. Jameson, deputy director of the Anglo-Persian Oil Company, with headquarters in London, England, has been on an inspection trip to Persia.

• • •

W. E. Klump, retired superintendent of the Prairie Pipe Line Company, now living in Tucson, Ariz., is spending a two weeks' visit with his daughter, Mrs. Wade Laudermilk.

• • •

Charles E. Beyer, of Texon, Tex., vice president of the Plymouth Oil Company, was on hand at the bringing in of the company's new wildcat well in Colorado County, Texas.

• • •

Otto Stern has been appointed a managing director of the Astra Romana S.A., and Fritz Gartner and H. L. F. van der Meer, submanagers, have also been appointed directors.

• • •

B. H. van der Linden, head of the production department of the Royal Dutch Oil Company, The Hague, Holland, has been in the United States inspecting the Shell properties.

• • •

Djevad Eyoub, formerly with the geological department of the Empire Gas & Fuel Company at Tampico, has been appointed chief of the Petroleum Division, Ministry of Economy of the Turkish Republic.

• • •

B. A. Myers, former manager of the Tropical Oil Company, of Colombia, South America, has been visiting his sister, Mrs. E. S. Oberly, of Oil City, Pa., on his way to Toronto, Canada, to which place he has been transferred.

• • •

J. A. Buggel has been assigned to the Florence, S. C., territory by the Standard Oil Company of New Jersey as its district manager. A. R. Taylor, formerly district manager, there is now with the retail sales division in Columbia.

• • •

Dugald Gordon, who has had charge of the Shreveport, La., office of Brokaw, Dixon, Garner & McKee, engineers and geologists, of New York, has moved to Houston, Tex., to which city the firm has transferred its Shreveport office.

• • •

R. D. Shaw, assistant salesmanager of Dowell, Inc., of Midland, Mich., has taken charge of the Mid-Continent territory with headquarters in Tulsa. J. A. Cummin, of Seminole, Okla., and C. E. Clason, of Newton, Kans., are assistants.

• • •

Bernard Frankel, general salesmanager for the Warner-Quinlan Company for the past eight years, has resigned from the company. Mr. Frankel was instrumental in developing the company, but has not been active in managing the company's sales since the latter part of 1931.

• • •

Dr. Richard E. Koch, head of the paleontological department for the Royal Dutch-Shell organization, The Hague, Holland, was in Tulsa last week on his way to St. Louis, Mo., and the East, after a trip in the United States begun last March. Doctor Koch has spent considerable time in California and on the Gulf Coast. He sails for home June 9.

Dr. J. A. L. Henderson, of London, England, is spending six months in Canada.

• • •

C. E. Beecher, chief production engineer of the Empire Oil & Refining Company, was a visitor in Tulsa recently.

• • •

H. H. Schwartz, of the Empire Oil Company, has returned to Casper after a trip to northeastern Wyoming and the Osage oil field.

• • •

E. D. Tucker, district gauger for Humble Pipe Line Company in Howard-Glasscock, Texas, Field, plans to spend his vacation with friends in California.

Men of the Industry

—Photo by Blank-Stoller, Inc.

W. CHALMERS BURNS

W. Chalmers Burns, who June 1 became general manager of the Richfield Oil Corporation of New York, taking over the duties of A. C. Woodman, president, who resigned on that date, is well known in Eastern marketing circles. Starting with James B. Berry Sons in Oil City, Pa., in 1919, after his discharge from the army, Mr. Burns was made New England salesmanager in 1922. After four years in this position, Mr. Burns resigned and with Ralph W. Walsh, also an executive in the Berry organization, and now salesmanager for Richfield Oil Company of California, organized the Walburn Petroleum Company, with headquarters in New York. The company marketed refined products under its own brand for three years, building up an extensive distributing organization in the Atlantic Seaboard area and in 1929 was acquired, along with the Acewood Petroleum Company of New York, by the Richfield Oil Company of California, the Walburn and Acewood companies forming the nucleus for Richfield Oil Corporation of New York.

Mr. Burns went with the New York Richfield company as vice president, and shortly thereafter was made executive vice president in charge of all sales. Upon the retirement of Mr. Woodman as president of Richfield Oil Corporation of New York on June 1, Mr. Burns was tendered the post, but declined for the present, owing to the fact that some reorganization is looked for when new controlling interests take charge of the company upon the conclusion of present negotiations with the receiver for the parent Richfield Oil Company in California.

John McLister, of Windsor, Ontario, will leave shortly for Ecuador on a drilling contract.

• • •

B. Teagle, of the engineering department of the Standard Oil Company of New York, has sailed from New York for France.

• • •

Clarel B. Mapes, technologist and assistant secretary of the Mid-Continent Oil and Gas Association, is recovering from a tonsil operation.

• • •

Walter Meier, chief petroleum engineer of the Atlantic Oil Producing Company, has recovered from a prolonged illness that compelled him to undergo several operations.

• • •

Fred Kolp, representative for the Frick-Reid Supply Corporation, has been transferred from Fort Worth to East Texas for an indefinite period. East Texas headquarters are at Greggton.

• • •

Harold Armstrong, with the Alco Company, who has been making installations near Baku, Russia, is in the United States for a brief visit and will return to Baku to complete contracts.

• • •

F. Ray McGrew, president of the Standard Pipe Line Company, of Shreveport, La., has again assumed his duties following recovery from a protracted illness of over a year's duration.

• • •

K. C. Heald, staff geologist for the Gulf Oil Companies at Pittsburgh, Pa., has been examining tracts in Fresno County, California, recently acquired by the Western Gulf Oil Company, a subsidiary.

• • •

T. J. Cahill and daughter, Miss Mary, of Cheyenne, stopped over in Casper, Wyo., several days, going and coming on a trip to Montana. Mr. Cahill was one of the pioneer oil operators in central Wyoming.

• • •

Allen M. Peairs, president of the Ampco Engineering Company, and Miss Anne Corbin, both of Dallas, Tex., were married in that city on June 1, leaving for a two weeks' honeymoon and business trip to St. Petersburg, Fla.

• • •

Dr. R. C. Wallace, president of the University of Alberta, well known to the oil and gas industry through his membership in the Turner Valley Gas Conservation Board, was recently granted the degree of Doctor of Laws pro honoris causa at the convocation exercises of the University of Toronto.

• • •

Dr. Ralph D. Hetzel, president of the Pennsylvania State College, will speak at one of the sessions of the annual meeting of the Pennsylvania Grade Crude Oil Association to be held at State College, June 29 and 30. The general program of research being carried on at the college will be described by President Hetzel.

• • •

James O'Neill, formerly superintendent of the Bossier City, La., plant of the Louisiana Oil Refining Corporation, has resigned to join Oil Refineries, Inc. (formerly Grogan Oil Company) of Shreveport, La., in similar capacity at the company's Overton, Tex., plant, recently acquired from the Rusk Refining Company.

• • •

O. D. Donnell has been re-elected president and general manager of the Ohio Oil Company, Findlay, Ohio. Serving with Mr. Donnell on the board of directors are R. J. Berry, C. J. Fleming and E. B. Redpath, all of Findlay; J. K. Kerr, Marshall, Ill.; W. W. Fleming, Tulsa; and John McFadyen, Casper, Wyo. Mr. Berry, Mr. Kerr and Mr. McFadyen are vice presidents; Mr. Fleming, secretary; Mr. Redpath, W. R. Hodge, A. Baker and F. F. Young, assistants; F. A. Billstone, treasurer; J. P. Sutton, C. H. Smith, J. F. Orthwein, J. L. Cook and H. C. King, assistants.

9 REASONS WHY -

NATIONAL U S S 18-8 STAINLESS AND HEAT RESISTING PIPE AND TUBES ARE BETTER FOR CRACKING STILL TUBES, HOT OIL LINES, ETC.

1. Seamless—no welds.
2. High resistance to corrosion.
3. Maximum strength at high temperatures.
4. Unusual resistance to oxidation or scaling.
5. Dependable uniformity in structure, strength, and quality.
6. Accurately controlled heat treatment.
7. Exceptional ductility.
8. Sentry drilled (when ordered) an exclusive feature.
9. Made by the largest manufacturer of tubular products in the world.

NATIONAL Engineers and Metallurgists will gladly aid in determining the most effective application of this alloy material for any particular service requirement. Descriptive literature sent on request.

NATIONAL TUBE COMPANY, Pittsburgh, Pa.
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U S S Chromium-Nickel Alloy Steels are produced under the licenses of the Chemical Foundation, Inc., New York; and Fried. Krupp A. G. of Germany.

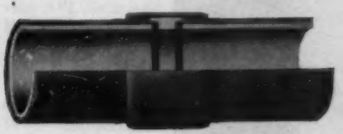
NATIONAL USS
STAINLESS AND HEAT RESISTING PIPE AND TUBES

NEW AND IMPROVED EQUIPMENT

"Duroline" Pipe Found to Resist Corrosive Agents

Oil field experience with "Duroline" pipe, manufactured by the National Tube Co., Pittsburgh, Pa., is reported to have shown this material to be satisfactorily resistant to the salt water and hydrogen sulphide mixtures handled, and that its use results in economies under such conditions.

A line of 6-inch Duroline pipe has been in service for about 2½ years in a salt water disposal system near Luling, Tex. This line handles about 1,000 bbls. per day of water containing a total of approximately 38,000 parts per 1,000,000



of sodium, magnesium and calcium chlorides, and about 500 parts per 1,000,000 of hydrogen sulphide. The line is installed in a low-lying sandy soil, its position causing it to be filled with salt water at all times regardless of the rate of flow. An inspection of this line after 1½ years' service, in which alternate lengths of the pipe were lifted, showed no deterioration of the lining and no tubercles had formed on the inside of the pipe.

In an East Texas oil refinery, 4-inch Duroline pipe was in good condition after 14 months' service on the transfer line of a clay cooker. During this time the cooker transferred into the pipe 133 times, each transfer involving 10,600 gallons of a mixture consisting of clay, sulphates of iron and aluminum, and dilute sulphuric acid of 4 to 7 per cent free acidity, at a temperature of 160 to 180° F.

Gathering lines of Duroline pipe were installed about four years ago near Casey, Ill. These lines are still serviceable in spite of the fact that they are operating under extremely corrosive conditions.

INDUSTRIAL ENGINEERS, INC.

Industrial Engineers, Inc., has been formed to offer consulting and development services to the refining, gas and solvent extraction industries. It specializes particularly to problems dealing with the stabilization of gasoline and dehydration of natural gas. The corporation also engages in certain development work of its own, but does not enter into the manufacture or marketing of such developments. It prefers to license suitable concerns to carry out these functions. It controls several patents on equipment and processes, and lately has developed a new type of air-filter suitable for large gas engines. Work has also been completed on a vapor pressure recorder-controller, a device which will be invaluable to all processes producing a product of a volatile nature. The company is headed by F. L. Kallam, formerly chief engineer of the gasoline department of the Foster Wheeler Corp., New York.

OIL WELL SOLE DISTRIBUTOR

The Oil Well Supply Co. has been appointed exclusive oil country distributor of the Thermoid Rubber Co., Trenton, N. J. Thermoid oil country belting, hose, brake lining, packings and stuffing box rings are well known throughout the industry. Thermoid engineers have based their product developments on a thorough knowledge of oil and gas field conditions and offer products "built for the job."

Notes About Trade Literature

An interesting 24-page booklet, attractively illustrated, may be obtained from the J. P. Devine Manufacturing Co., Inc., Mount Vernon, Ill., describing the company's wide range of petroleum distillation equipment.

—

Telemetering and totalizing station loads is the subject of a 16-page bulletin No. 874, just issued by the Leeds & Northrup Co., 4901 Stenton Avenue, Philadelphia, Pa. This bulletin discusses means for providing the load dispatcher of an electric power system with continuous information on load conditions throughout the system, to facilitate load distribution in ordinary conditions, and to aid in control of emergencies.

—

The General Electric Co. is sending out loose-leaf bulletins on G-E quiet induction motors and G-E sound-isolating motor bases and also a separate bulletin on explosion-proof motors and control for hazardous locations.

—

The Four Wheel Drive Auto Co.'s latest Monthly News Letter describes the FWD Road Maintainer, which, the owners say, does a complete job of road maintenance and is also used for making oil mix roads, repairing shoulders, cleaning ditches and all types of hauling.

—

A bulletin ready for distribution by the Semet-Solvay Engineering Corp., 40 Rector Street, New York, describes the new Semet-Solvay process for utilizing heavy oils in the enrichment of water gas. It presents both the process and a model of a water gas carburetor, accurate as to scale and arrangement, showing how the installation will look.

—

The George S. Mepham Co. of East St. Louis, Ill., manufacturer of Colox, a mud weighting and conditioning material, has published an attractive and informative 16-page booklet on drilling fluids.

—

An eight-page bulletin which may be obtained from the National Transit Pump & Machine Co., Oil City, Pa., discusses the economy of utilizing refinery gas as fuel and tells about the adaptability of the Transit four-cycle gas engines for refinery service.

—

Low pressure gas measurement with the bell-type meter is the subject of an eight-page bulletin which the Foxboro Co., Foxboro, Mass., has ready for distribution.

—

South Bend Lathe Works, South Bend, Ind., Circular No. 9-6, describes in detail the latest developments in the company's line of lathes featuring the 9-inch No. 20 Toolmaker South Bend horizontal motor-driven lathe and the same size and type countershaft driven lathe for small accurate machine work. The motor-driven lathe operates from an electric lamp socket. The bulletin also describes accessories to the line of lathes mentioned.

—

Booklet I-4-33 describing steel substructures as used by the Parkersburg Rig & Reel Co. may be obtained at any of our branch warehouses, district offices or by writing the company's office in Parkersburg, W. Va.

Northwest Engineering Is Offering Two-Yard Shovel

The Northwest Engineering Co., 28 East Jackson Boulevard, Chicago, builder of gasoline, oil and electric powered shovels, cranes and draglines has announced a new shovel, the Northwest Model 80, which has a capacity of 2 cubic yards. Both the boom and dipper sticks are of all-welded construction. The boom is slightly cambered to make possible maximum operating ranges, and it is said the patented independent crowd offers speed, simplicity and extra digging power.

This new shovel is powered with a special 4-cylinder 8"x9" Northwest-Twin City gasoline engine, a heavy duty power plant operating at slow speed and capable of offering maximum resistance to the drag-down loads of rock digging. Exceptionally low fuel consumption is claimed. Mobility results from the special crawler design, which makes possible positive traction on both crawlers even while turning, assuring positive and easy steering under severe conditions.

It is said that the "cushion clutch" on the hoist drum transmits the full engine power but reduces the overload shock 50 per cent. The engine drive gears are mounted on ball and roller bearings and run in a bath of oil, in an oil-tight housing. The gears have helical cut teeth assuring quiet operation and the maximum delivery of power. The "feather-touch" control shifts the main clutches making operation fast and easy, and the operation of the clutch is in direct proportion to the pressure of the operator's hand on the lever. All high-speed shafts are mounted on self-aligning ball bearings.

New Line of Compressors and Vacuum Pumps Ready

The new single-stage water-cooled rotary air compressors and dry vacuum pumps announced by the Allis-Chalmers Manufacturing Co., Milwaukee, Wis., are of the multicellular, sliding-vane type. Essentially this type of machine consists of a cylindrical casing in which a cylindrical rotor, smaller in diameter than the bore of the casing, is arranged eccentrically. Radial slots are cut along the entire length of the rotor, into which fit the sliding vanes. The rotor is mounted on a shaft supported by roller bearings contained in removable heads which bolt to and close the ends of the cylindrical casing.

As the rotor turns, the sliding vanes are thrown out by centrifugal force, forming a number of cells, each cell being contained between the surface of the rotor, two vanes and the casing wall. Owing to the eccentricity of the rotor the cells increase during each revolution from a minimum capacity to a maximum, and again to a minimum, thus producing the suction and pressure effect.

To prevent excessive friction loss and wear the blades are not allowed to bear on the wall of the casing. Instead floating rings are employed, having an inner diameter slightly less than the casing bore. The blades bear on these rings only, and cause the rings to rotate with the rotor and blades. The outer surfaces of the floating rings are separated from the casing by a slight clearance. Lubrication is effected by oil under pressure injected at each floating ring and at the ends of the rotor.

Men Well Known in the Equipment Field

M. (Bink) Manning had a background of 22 years' experience among the oil derricks before he entered the Houston Oil Field Material Co. and became its president. Starting as a roughneck for the Gulf Production Co. in the Vinton

and Edgley Fields, Louisiana, in 1909, he was advanced to gang pusher and in 1916 he was made production superintendent first in the Goose Creek Field and then in the Humble. Leaving the Gulf, he joined the Humble Oil & Refining Co., which he served as production superintendent and night drilling superintendent. In 1920 he was made district production superintendent with headquarters in Houston. In 1925 he was promoted to production and drilling superintendent.

Mr. Manning remained with the Humble till 1931, when his brother, Sanford (Red) Manning, president of the Houston Oil Material Co., organized in 1929, died. "Bink" Manning then took over his brother's controlling interest in the company and was made president. The company's business had grown and it had valuable patents, including one on a full-hole cementing tool, which the company later sold to the Halliburton Oil Well Cementing Co.

The Houston Oil Field Material Co., which acts as manufacturers' representative, handling a complete line of oil field equipment, recently moved into its own new building at 1524 Maury Street, Houston. Besides being head and active manager of that organization, Mr. Manning is president of the Oil Fields Salvage Co.

As a result of his broad experience in the Gulf Coast area, Mr. Manning frequently is able to give operators valuable information and advice concerning work in oil fields of that territory.

J & L Steel Boiler Tubes Are Exceptionally Ductile

The Jones & Laughlin Steel Corp., Pittsburgh, Pa., has announced a complete line of hot-rolled seamless steel boiler tubes. A push-bench mill, the only one of its kind in this country, is used for manufacture. The forging action of

this mill is said to be excellent, the quality of the steel being improved with each step in the process.

These J & L boiler tubes have exceptional ductility and lend themselves readily to rolling-in and bending operations. A striking characteristic of J & L boiler tubes is their handsome appearance, the surfaces both inside and outside being unusually smooth. This, the manufacturer states, is an important factor in retarding corrosion when the tubes are in use and in minimizing depreciation while they are held in stock.

The product complies with the A.S.M.E. boiler code, A.S.T.M. specifications, and the U. S. Steamboat inspection service rules and regulations.

MacClatchie Valve Insert Marketed in Sealed Tins

A new development in the packing and shipping of rubber inserts for mud pump valves has been introduced by the MacClatchie Manufacturing Co. of Compton, Calif. MacClatchie inserts are now packed in air-tight sealed tin containers, eight to the can, and labeled according to the size and make of pump for which the contents are designed.

This method of packaging is said to preserve the rubber indefinitely, even in the hottest climates—a distinct advantage in many foreign fields. Moreover, it protects the inserts against damage in transit or in storage, and simplifies the problems of the warehouseman.

Mud pump valves and inserts in more than 100 different types and sizes are made by this company, in addition to other oil field drilling and production specialties.

Burner Is Built to Insure Complete Fuel Combustion

The Ritter gas burner, developed by the Ritter Gas Burner Corp., Neil P. Anderson Building, Fort Worth, Tex., is said by the manufacturer to eliminate fuel waste by effecting complete and perfect combustion, all the gas passing through the burner being converted into heat.

Advantageous features enumerated by the company include the following: Do not cause soot deposit on flues and thus eliminate the necessity of flue cleaning; operate, regardless of load, without vibration removing the need of furnace and other repair work from this source; operate perfectly with automatic controls, giving the engineer time to attend to other duties; operate with either natural or forced draft; if desired, oil and gas may be fired at the same time; no backfiring; full self-induced draft, without manual adjustment.

New "Caterpillar" Grader Offers Full Power Control

The No. 66 "Caterpillar" grader with full power control is announced by Caterpillar Tractor Co., Peoria, Ill. The control unit is the same as the one used on the "Caterpillar" No. 77 grader. A one-cylinder, air-cooled gasoline engine furnishes power to control 18 actions of the grader, including steering, leaning the wheels, raising and lowering the blade, turning and side-shifting the circle, side-shifting the rear axle and operating the scarifier.

Seven power control levers, grouped in front of the operator, are equipped with automatic releases to protect the machine when the limit of any adjustment has been reached. Two of them may be shifted to control two separate adjustments. All gears are fully enclosed and run in oil.

Aside from the power control, this grader is identical with the hand-controlled No. 66 "Caterpillar" grader previously announced.

Baker Tools, Inc., Huntington Park, Calif., is mailing a leaflet describing the new Baker rotary hydraulic expansion wall scraper.

Among the Equipment Houses

The Houston Oil Field Material Co., Houston, Tex., is now occupying its new store and general office at 1524 Maury Street.

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C. E. Reed, formerly in general charge of the manufacture of drilling bits for the Chicago Pneumatic Tool Co., Chicago Pneumatic Building, New York, has been placed in charge of sales in the field. Mr. Reed has been engaged in the design of cone and rotary-type roller bits since 1912. His headquarters will be in Wichita, Kans.

—

The C. F. Camp. Co., distributor of Waukesha motors, for several years located at 221 East Archer, Tulsa, has moved to the building on the Sand Springs Railway, recently vacated by the Tulsa Tractor Co.

—

The Bristol Co., Waterbury, Conn., maker of indicating, recording and controlling instruments, has moved its New York office to the Daily News Building, 220 East Forty-second Street. C. W. Williamson, district manager, continues in charge.

The Center Tool Co., Houston, Tex., has started installing a special asbestos packing of OCT bradenheads in order to eliminate fire hazards in high-pressure wells.

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Delivery has been made and installation completed by the Byron Jackson Co., Berkeley, Calif., of the new 5-inch horizontal, double-case hot oil charging pump for the Associated Oil Co. at Avon, Calif.

—

C. K. Stillwagon, salesmanager for the Oil Equipment Sales Corp., was elected vice president and general manager at a meeting of stockholders held May 20 in the company's general office, Houston, Tex.

—

Appointment of Walter Parker as works manager of the liquid meter division of the Pittsburgh Equitable Meter Co. has been announced. Mr. Parker, who formerly was chief engineer of the division, is a graduate of the mechanical engineering school of the North Carolina State University. H. I. Beardsley has been appointed manager of sales of the oil and gasoline meter division.

New Motor Base Embodies Sound-Isolating Features

A motor base with scientificially designed sound-isolating features has been developed by the General Electric Co. Floating members are suspended on specially developed isolating material, so enclosed and mounted that long life and freedom from damage result. The motor is mounted as on a standard sliding base, and belt tension and motor alignment are maintained in the ordinary manner.

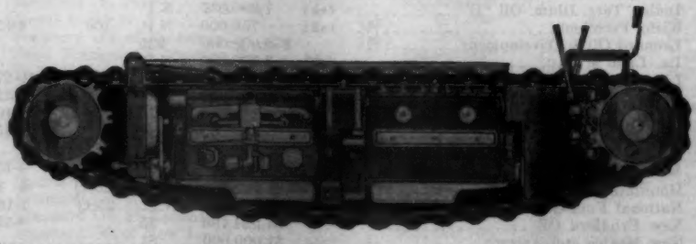
In addition to its sound-isolating qualities, the new base offers the following advantages for facilitating installation and contributing to successful operation: (1) Adjusting screw moves motor for belt adjustment. (2) Bases are installed as a unit. No more attention to adjustment is required than is necessary for standard sliding bases. (3) The stiffness of the sound-isolating material is sufficient to maintain motor alignment for any reasonable belt tension. (4) Guide washers in machined grooves are used with the belt-adjusting feature to maintain motor alignment.

Unusual Features Mark Philadelphia Gas Holder

Unusual features are incorporated in the construction of a gas holder recently installed at the Point Breeze Station A of the Philadelphia Gas Works Co. This is a five-lift water sealed holder of the conventional type having a capacity of 10,000,000 feet, and is contained in a tank 264 feet 8 inches in diameter by 41 feet 2 inches deep and guided in a frame of 26 columns and 7 tiers of struts. The holder was manufactured and erected by the McClintic-Marshall Corp., Bethlehem, Pa.

Electric welding was employed in a variety of ways. The tank bottom was completely welded, the metallic arc process being employed. The guide frame columns are "tee" sections made by arc welding two beams together. Welding also was employed at many points in order to seal between members so as to prevent internal corrosion. Another unusual feature was the driving cold of all rivets in the tank shell, even though some were as large as 1⅝ inches. An elevator runs from the ground to the top of the guide frame.

Schramm Develops Self-Propelled Air Compressors



Schramm, Inc., of West Chester, Pa., has announced addition of the Trac-Air compressor to its line of portable compressors and welders. This compressor is designed and especially adapted for pipe line construction work because of the self-propelled and crawler type traction features, which permit the operator to drive the unit along the job and at the same time to travel rough, uneven ground and steep inclines.

Driving power for traction is supplied by two reversible air motors operated from the air compressor by means of an alloy steel, roller chain drive. An average speed of 1 to 1½ miles per hour, either forward or reverse, can be attained and the turning radius can be confined to a small area.

The unit is built in three sizes—120, 240 and 360 cubic foot displacements and includes the standard Schramm compressor construction. Power is supplied by the heavy-duty Buda engine. The driver's seat is comfortably located in a position that eliminates rough riding when traveling sharp inclines and uneven surfaces. Control levers for steering and motor speed are conveniently located on each side of the seat.

"Powerlite" Lantern Fills Many Oil Field Purposes

The Delta Electric Co., Marion, Ind., is putting on the market the Delta Powerlite, which it designates as "a real innovation in electric lanterns." The Powerlite is of new design, with two reflectors, one at the top and one at the side. It is said to give 80 to 100 hours of intermittent light from one standard six-volt battery or 45 hours of continuous light. It weighs only 3 pounds with battery.

The side reflector gives a sharp, penetrating spot beam of 800 feet. The top one gives a wide area of bright light for close work. It can be laid down in various positions to fill various needs, while its wide base and top reflector make it excellent for lamp use. It is designed to fill many purposes in the oil field.

Oster-Williams Die-Head Modernizes Old Machines

Oster-Williams, Cleveland, Ohio, have brought out a new die-head, the No. 706, which can be installed on old pipe machines. The new head containing improvements in pipe fabricating machine manufacture, virtually makes it possible for any 6-inch pipe machine owner to have a modern machine through its installation.

The range of the new head covers all sizes of pipe from 1 to 6 inches and bolts from three-quarters to 6 inches inclusive. The head is calibrated regularly for Briggs standard but can be marked special to suit customers' requirements. A micrometer adjustment for oversize or undersize threads is standard equipment.

New Type of Battery for Potentiometer Developed

The Brown Instrument Co., Philadelphia, Pa., has developed a new type of battery for use with the Brown potentiometer, which eliminates frequent standardizing. This new battery, the Brown compensated air cell, having a constant current output and a life of over 2½ years, is designed to assure the potentiometer user of continuous accuracy with minimum attention. It can be used with all types of Brown potentiometers. A bulletin describing the Brown air cell can be obtained from the manufacturer.

NEW DEVELOPMENT IN WELDING

A new development in arc welding, particularly suited to the joining of heavy plates, is announced by the Metal & Thermit Corp., 120 Broadway, New York. The process, known as Murex straight gas welding, does away with all need for "veeing" or grooving of plate edges. Plates may be used just as they come from the mill. Greater welding speed and reductions in cost are claimed. At the same time the company announces an addition to its line of Murex heavy mineral coated electrodes. The new unit, Murex universal, is for use on mild steel and may be employed in either flat, vertical, or overhead work. Smooth, clean deposits of unusually high tensile strength and ductility are said to be obtained on any of these classes of work.

MARKET RECORD OF OIL SECURITIES

By A. E. Mockler

NEW YORK, June 5.—Oil securities during the past week experienced the greatest advance for many months back, the upward movement carrying virtually the entire list into new high ground for the year. The Oil and Gas Journal's average price for 20 selected oils reached a new high for the year at 20.51.

The advance was based on a number of factors, including inflation and expected constructive developments within the oil industry, notably a belief that sharp advances in crude oil and refined prices are imminent, which should result in a betterment of the earning power of the industry as a whole.

On the Stock Exchange new highs for the year were made last week by Amerada, Associated Oil, Atlantic Refining, Barnsdall, Columbia Gas & Electric, Consolidated Oil, Continental Oil, General Asphalt, Houston Oil, Louisiana Oil Refining, Mid-Continent Petroleum, Ohio Oil, Phillips Petroleum, Pierce Petroleum, Plymouth Oil, Prairie Pipe Line, Royal Dutch, Seaboard Oil, Shell Union Oil, both common and preferred, Simms Petroleum, Skelly Oil, Socony-Vacuum, Standard of California, Standard of Kansas, Standard Oil Co. (New Jersey), Sun Oil, Superior Oil, Texas Corp., Texas Pacific Coal & Oil, Tide Water, Tide Water Associated Oil and Union Oil.

On the Curb new highs for the year were attained by American Maracaibo, Arkansas Natural Gas, Arkansas Natural Gas A and Arkansas Natural Gas preferred, British American Oil, Cities Service, both common and preferred, Columbia Oil & Gasoline, Colon Oil, Consolidated Royalty, Darby Petroleum, Derby Oil & Refining, Indian Territory Illuminating Oil, Kirby Petroleum, Lion Oil Refining Co., Lone Star Gas, Mountain Producers, New Bradford Oil, Reiter Foster, Ryan Consolidated, Salt Creek Producers, Texon Oil & Land, South Penn Oil, Standard Oil companies of Kentucky, Indiana, Nebraska and Ohio, National Transit, Buckeye Pipe Line, Humble, Imperial Oil, Indiana Pipe Line and International Petroleum.

Shell T. & T.

Shell Transport & Trading Co., Ltd., reports for 1932 net profit of £2,661,457 after expenses, directors' fees and other charges. This compares with £2,557,259 similarly earned in 1931. It declared a dividend of 7½ per cent on its common stock, tax free, for 1932, the same rate paid in 1931.

Colon

Colon Oil Corp. reports for 1932 consolidated net loss of $11,408,359 after intangible drilling, production and general expenses, depreciation, depletion, interest and amortization of debenture discount. This compares with consolidated net loss of $822,336 in 1931.

Royal Dutch

Royal Dutch Co. (holding company) reports for 1932 net income of 28,303,691 florins, after expenses, taxes, etc., as compared with 27,916,648 florins earned in the previous year. It has declared a dividend of 6 per cent for 1932, the same as in 1931.

Burmah Oil

Burmah Oil Co., Ltd., has declared a final common dividend of 15 per cent, less tax, making 20 per cent, less tax, for 1932.

Louisiana Land

Louisiana Land & Exploration Co. reports for 1932 net income of $190,725 after taxes and charges, equal to 6 cents a share on 3,000,000 shares. This compares with net loss of $1,660 in 1931.

Standard Oil of Kentucky

Standard Oil Co. of Kentucky has declared the regular quarterly dividend of 25 cents per share, payable June 15 to stock of record June 1.

Ohio Oil

Ohio Oil Co. has declared the regular quarterly dividend of $1.50 per share on its 6 per cent preferred, payable June 15 to stock of record June 3.

Seaboard

Seaboard Oil Co. of Delaware and subsidiaries report for the March quarter net profit of $290,809 after charges, equal to 24 cents a share on the 1,204,460 no-par shares of capital stock, excluding 39,923 shares held in the treasury. This compares with net of $180,339, or 14 cents a share, in the first quarter last year.

Louisiana Oil

Louisiana Oil Refining Corp. and subsidiaries report for 1932 net loss of $1,964,147 after charges and taxes, compared with net loss of $2,330,719 in 1931.

Twenty Representative Stocks

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange and New York Curb, based on closing quotations for Wednesday, was as follows:

Nov. 16	15.15	Feb. 22	13.14
Nov. 23	14.61	Mar. 1	11.91
Nov. 30	14.04	Mar. 15	14.22
Dec. 7	13.31	Mar. 22	12.66
Dec. 14	14.31	Mar. 29	12.35
Dec. 21	13.53	Apr. 5	12.60
Dec. 28	13.50	Apr. 12	12.04
Jan. 4	13.89	Apr. 19	14.82
Jan. 11	14.52	Apr. 26	15.80
Jan. 18	13.76	May 3	16.14
Jan. 25	13.37	May 10	17.22
Feb. 2	13.26	May 17	20.20
Feb. 8	13.31	May 24	18.00
Feb. 15	13.14	May 31	20.51

S. O. Kansas

Standard Oil Co. of Kansas reports for the three months ended March 31, last, net loss of $271,134 after taxes and charges.

Tide Water

Tide Water Associated Oil Co. will show a substantial loss for the first

Independent Oils on New York Curb

Quotations Compiled by Francis, Bro. & Co., Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

(Complete record week ended May 27)

1933 High	1933 Low	Week ended May 27 Sales	Week ended May 27 High	Week ended May 27 Low	Close May 31	Stocks		Outstanding capital	Par value	Div. rate	Payable or last paid	1930 High	1930 Low	1931 High	1931 Low	1932 High	1932 Low
1	1/16	19,900	7/8	1/2	1	American Maracaibo	(sh)	700,000	N.P.	....	.....	4 1/2	1/2	1 3/4	1/4	3/4	1/4
3 1/8	1 1/8	1,400	2	1 3/8	3 1/2	Arkansas Natural Gas	(sh)	4,084,225	N.P.	....	.....	16 3/4	4 3/8	6 1/2	1 7/8	3 3/4	3/4
3 1/8	1	17,100	2	1 3/8	3 3/8	Arkansas Natural Gas "A"	(sh)	3,522,521	N.P.	....	.....	16 3/8	4 3/8	6 3/4	1 7/8	3 3/8	1/2
4	2	1,200	3 1/2	2 7/8	4 7/8	Arkansas Natural Gas pfd.	(sh)	2,193,000	$10	....	4- 1-32	8 1/8	6 1/4	7	3 7/8	5 5/8	1 1/2
11 3/8	6 1/8	1,700	11 1/4	10 3/4	11 1/4	British American Oil Corp.	(sh)	2,622,642	N.P.	20cQ	3-14-33	23	13 3/8	16 1/8	6 1/4	9 3/4	6 3/4
1	1/4	1,000	1	7/8	7/8	Carib Syndicate		$131,250	25c	....	.....	2 3/4	5/8	2 5/8	1/4	5/8	1/4
6	2	243,000	4 1/4	2 1/8	6	Cities Service	(sh)	36,979,065	N.P.	....	6- 1-32	44 1/4	13	20 3/4	5	6 7/8	1 1/4
30	10 1/2	3,900	24	16	29 1/2	Cities Service pfd.	(sh)	1,125,931	N.P.	....	6- 1-31	93 7/8	78 1/4	84 3/4	35 5/8	53 5/8	10
1 1/2	5/8	3,900	1 3/8	1 1/4	1 1/2	Columbia Oil & Gasoline v.t.c.	(sh)	$2,000,000	$1	....	.....	3/4	1/8	1/2	1/16	2 1/16	1/2
1 7/8	1/4	9,800	1 3/4	3/4	1 1/4	Colon Oil	(sh)	2,200,000	N.P.	....	.....	8 1/4	1 1/8	3 1/8	1/4	1 1/4	1/4
2 7/8	1	800	2	1 3/4	2 7/8	Consolidated Royalty Oil Co.		$5,527,880	$10	5cQ	1-25-33	5 7/8	2	2 3/4	1	2	1
4 1/4	7/8	400	3 1/2	2 1/2	4 1/4	Cosden Oil	(sh)	323,950	N.P.	....	.....	74 3/4	1 1/4	3 3/4	3/8	2 7/8	1/4
5 1/4	2 1/8	800	5	4	5 1/4	Darby Petroleum	(sh)	609,696	N.P.	....	10-15-30	21 3/4	4 1/4	5	1 3/4	7 1/8	1 5/8
2 3/8	7/8	200	1 7/8	1 7/8	2	Derby Oil & Refining	(sh)	500,000	N.P.	....	. .	11	2	6	1 1/2	3	1
51 1/4	24	17,000	46 1/2	42 1/2	49 7/8	Gulf Oil Corp.	(sh)	4,504,921	$25	....	10- 1-31	166 7/8	58 1/2	75 1/2	25 3/8	44 3/4	23
5 5/8	1 1/4	500	4 1/2	2 3/8	5 5/8	Indian Terr. Illum. Oil "B"	(sh)	7,090,037	N.P.	....	.....	53 1/2	12 5/8	16 1/8	5	4 1/2	1 1/2
1 7/8	5/8	3,000	1 1/8	7/8	1 1/2	Kirby Petroleum	(sh)	750,000	N.P.	10c	4-15-33	3	7/8	1 7/8	1/4	1	3/8
3/4	1/8	2,600	1/2	3/4	1/2	Leonard Oil & Development		$50,000,000	$25	....	.....	5	3/4	2	1/2	3/4	1/8
2 1/4	1/16	9,200	2	1 1/8	2	La. Land & Exp.	(sh)	3,000,000	N.P.	....	.....	4 3/4	1/2	1 1/2	1/4	2 1/2	1/2
4 1/4	1 1/4	900	4	2 5/8	4 1/4	Lion Oil & Refining	(sh)	250,000	N.P.	....	10-27-30	29	4 1/8	6 3/4	1 1/2	3 1/2	7/8
9	4 3/4	5,600	8	7 5/8	9	Lone Star Gas	(sh)	5,000,000	N.P.	16cQ‡	3-31-33	55 1/8	19 5/8	25	5 1/2	11	3 3/8
6 1/4	4	No sales	..	..	..	Margay Oil Corp.	(sh)	149,757	N.P.	25cQ	1-10-33	16	8	5	1 1/8	8	3 3/4
6 1/8	2 1/8	800	5	4 3/8	..	Memphis Natural Gas	(sh)	920,000	N.P.	....	4-15-32	22 1/4	7 1/2	12 1/8	4 1/2	5 1/4	1 5/8
5	2	400	4	4	3 3/4	Mexico-Ohio Oil Co.		500,000	N.P.	....	.....	7 1/2	1 3/4	4 1/8	1 1/2	3 3/8	1 1/2
5/8	1/4	No sales	..	..	3/4	Mountain & Gulf		$4,000,000	$1	....	4-15-31	3/4	3/8	1/2	1/8	3/8	1/8
6 3/8	2 1/2	7,000	4 7/8	4 1/8	6	Mountain Producers		$1,682,182	$10	20cQ	4- 1-33	12 1/8	3 3/4	5 7/8	2	4 3/4	2 1/4
20	10	14,600	20	13 1/2	18 3/8	National Fuel Gas	(sh)	3,810,183	N.P.	25cQ	1-16-33	41 3/8	19 3/8	26 1/2	9 3/4	14 1/8	8
1 1/2	1/2	1,000	1 1/4	1 1/4	1 1/2	New Bradford Oil		$7,224,186	$5	....	4-15-31	3 1/2	1 1/8	1 1/2	1/2	7/8	3/8
1 1/4	1/2	1,800	1 1/4	1 1/8	..	New Mexico and Arizona		$1,000,000	$1	....	.....	7 1/4	1 1/2	3	3/4	1 1/4	3/8
2 1/2	1/2	300	2 1/8	2	..	North Central Texas	(sh)	262,446	$5	....	9- 2-30	11 1/4	2 1/8	3 1/4	5/8	1 1/2	5/8
3/8	1/16	1,100	1/4	1/4	1/4	North European Oil	(sh)	1,372,391	N.P.	....	.....	6 1/4	5/8	2 1/8	1/4	3/8	1/16
6 1/2	3	900	6 1/2	6	6	Pacific Western Oil	(sh)	1,000,000	N.P.	....	.....	19 1/2	5 1/2	15	2 1/8	8	3
3/4	1/8	2,400	3/4	1/4	1/16	Pantepec Oil	(sh)	1,595,500	N.P.	....	.....	4 3/8	7/8	2	3/8	5/8	1/16
3/4	1/4	900	5/8	3/8	5/8	Reiter-Foster	(sh)	388,584	N.P.	....	12- 2-29	5 3/8	1	3 1/8	1/4	1/2	1/16
1 1/4	1/4	100	1 1/8	7/8	1	Richfield Oil pfd. x.w.	(sh)	399,950	$25	....	.....	23 1/2	6 1/2	11	1/4	1	1/8
3 1/4	5/8	2,200	2 3/8	1 1/2	3	Ryan Consolidated	(sh)	296,931	N.P.	..	.....	8 5/8	2	3	3/4	2 1/8	5/8
1/2	3/8	3,700	1/2	1/16	1/2	Salt Creek Consolidated	(sh)	1,286,300	$10	....	4- 1-31	2 1/2	1/2	1 3/8	1/8	7/8	1/8
9	3 1/2	6,200	6 1/8	5 1/4	8 1/4	Salt Creek Producers	(sh)	1,496,859	$10	25c	2- 1-33	15 1/4	5 1/4	7 3/4	2 3/4	5 1/2	2 1/8
7/8	1/4	3,200	3/4	5/8	5/8	Sunray Oil	(sh)	1,163,185	$5	....	4-15-31	10	2	5 1/4	1/4	5/8	1/8
12	6 1/4	2,500	11 1/2	11	11 7/8	Texon Oil & Land	(sh)	936,036	N.P.	25c†	12-30-32	19 1/2	8	12 7/8	2 1/2	10 1/2	4 1/2
3/4	1/8	3,300	3/4	1/2	3/4	Venezuelan Petroleum	(sh)	755,090	$5	....	2-15-30	4 1/4	3/8	1 7/8	1/4	11/16	3/8
2 3/8	1 1/2	1,400	2 3/8	1 7/8	2	Woodley Petroleum		$500,000	$1	....	3-31-29	5	1/2	3 1/2	1 1/8	2 3/8	1 1/4

*Ex-dividend. †Plus extra dividend of 25 cents. ‡Payable in stock. §Paid in lieu of regular cash dividend of 2 per cent.

quarter in its report to be issued shortly, said A. J. Byles, president, at the annual meeting. Resumption of the payment of dividends on the company's preferred stock, he said, will depend on the course of business.

Washington Oil

Washington Oil Co. has declared the regular quarterly dividend of 25 cents per share. Washington Oil Co. reports for 1932 net profit of $13,177, after taxes, depreciation, depletion, etc., as compared with $31,498 in 1931. Deficit was $34,195 after $47,372 dividend payments in 1932, as compared with surplus of $13,734 after dividend payments in 1931.

Phillips

Phillips Petroleum Co. reports for the March quarter net loss of $2,179,621 after charges and taxes, compared with net loss of $2,136,922 in the first quarter of 1932.

Chesebrough

Chesebrough Manufacturing Co. reports for 1932 net earnings of $796,860 after taxes and charges, equal to $6.65 a share on 120,000 shares of $25 par stock. This compares with net of $1,294,106, or $10.78 a share in 1931. Surplus on December 31, last, was $2,799,477, against $2,706,790 at the close of the previous year.

Standard Oil Stocks on New York Curb

Quotations Compiled by Francis, Bro. & Co., Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

(Complete record week ended May 27)

1933 High	1933 Low	Week ended May 27 Sales	Week ended May 27 High	Week ended May 27 Low	Close May 31	Stocks—		Outstanding capital	Par value	Div. rate	Payable or last paid	1930 High	1930 Low	1931 High	1931 Low	1932 High	1932 Low
8	6	100	8	8	8	Borne Scrymser		$1,000,000	$25	....	10-15-30	25	11¼	16	6	7	6
39	25	No sales ..	..	..	39	Buckeye Pipe Line		$10,000,000	$50	75cQ	6-15-33	69	39⅞	56	30	35	17½
100¼	71	450	100¼	95	..	Chesebrough Mfg.		$3,000,000	$25	$1Q‡	3-31-33	184⅞	104½	129½	75	90	53
6⅜	2¼	10,700	5⅜	4⅜	5⅜	Creole Petroleum	(sh)	6,974,356	$5	....	.....	7⅞	3	3⅞	1⅝	3⅛	1⅜
28½	20	No sales ..	..	..	26¼	Eureka Pipe Line		$5,000,000	$100	$1Q	5- 1-33	54¾	26	36	19	35	18
73½	40	7,500	63	58½	70¼	Humble Oil & Refining		$74,103,300	$25	50cQ	4- 1-33	119	57¼	72	44¼	55	35⅝
11⅞	6½	10,300	11⅜	9¾	11⅝	Imperial Oil of Canada	(sh)	26,557,496	N.P.	12½cQ	6- 1-33	30	15	18¼	7⅝	10⅞	6¼
7⅝	3¼	800	7	5¼	7½	Indiana Pipe Line		$3,000,000	$10	15cS.A.	5-15-33	41	14½	21¼	5½	7½	2¾
14¼	8⅞	14,800	13⅜	12½	13¾	International Petroleum	(sh)	14,247,088	N.P.	25cQ	3-15-33	24	11⅝	15½	7⅜	12¼	8
10	5½	1,100	8⅜	8⅛	9¼	National Transit		$6,362,500	$12.50	20cQ	12-15-32	22⅜	11½	17½	5	10½	6
3¾	3	200	3¼	3¼	..	New York Transit	(sh)	500,000	$5	15cQ	4-15-33	21⅜	10⅛	14½	5⅞	6	2¼
6	4¼	900	6	5½	..	Northern Pipe Line		$1,200,000	$10	25c	3-31-33	54	26¼	35½	20	5½	3⅛
17¾	11	1,900	16	15	17	South Penn Oil		$30,000,000	$25	25cQ	3-31-33	45⅞	16⅛	23⅞	9¼	16½	9⅝
4½	2¾	100	4½	4½	..	Southern Pipe Line		$1,000,000	$10	10cQ	3- 1-33	20⅞	8⅜	17	7	10	3⅜
33	24½	150	32¼	30	..	Southwest Pennsylvania Pipe Line		$1,750,000	$50	$1Q	12-31-32	64	32	42½	25	37	27
30⅛	17	65,700	27½	25⅛	28⅜	Standard Oil of Indiana	(sh)	15,941,895	$25	25cQ	6-15-33	59⅞	30	38½	13½	25⅛	13⅛
15¾	8⅜	6,300	14⅜	13⅜	15¼	Standard Oil of Kentucky		$26,069,830	$10	25cQ	6-15-33	40½	18⅝	23⅝	12½	15⅞	8⅝
17	11	400	14	13⅞	17	Standard Oil of Nebraska		$4,770,550	$25	25cQ	3-20-33	48⅞	34⅝	36½	16	19	10¼
26	15½	1,500	20	19¼	24½	Standard Oil of Ohio		$18,811,675	$25	37½cQ	1- 3-33	108½	43¼	62½	23	30⅛	15½
2½	1	500	2½	1½	..	Swan-Finch Co.	(sh)	34,480	$25	....	1-15-29	10	4	4½	1	2	1⅝

*Ex-dividend. †Unit of trading less than 100 shares. ‡Plus $1 extra.

Transactions in Oil Shares on New York Stock Exchange

Quotations Compiled by Francis, Bro. & Co., Members of the New York Stock Exchange and Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

(Complete record week ended May 27)

1933 High	1933 Low	Week ended May 27 Sales	Week ended May 27 High	Week ended May 27 Low	Close May 31	Stocks—		Outstanding capital	Par value	Div. rate	Payable or last paid	1930 High	1930 Low	1931 High	1931 Low	1932 High	1932 Low
39⅜	18½	16,500	36¾	34¼	37⅜	Amerada Corp.	(sh)	774,875	N.P.	50cQ	4-29-33	31½	16½	23	11¼	22⅝	12
20	6¾	80	16	15¼	20	Associated Oil		$34,356,180	$15	25cQ	.....	51	30	31	8¾	16½	6½
26	12⅜	69,400	24	21⅛	25	Atlantic Refining		$67,416,050	$25	25cQ	6-15-33	51⅜	16⅝	23⅝	8⅝	21⅞	8⅝
8½	3	119,700	7½	6½	8¼	Barnsdall Corp.		$11,293,895	$5	....	5-11-31	34	8⅝	14½	4	7	3⅜
19¼	9	142,300	18¼	16⅛	18	Columbia Gas & El.	(sh)	11,684,220	N.P.	20cQ§	5-15-33	87	30⅝	45⅝	11⅝	21	4¼
12	5¼	400	10½	9⅞	..	Colonial Beacon Oil	(sh)	1,444,970	N.P.	....	12-22-22	20⅜	8⅜	10½	7½	12½	9
11⅛	5	128,800	10	9⅛	11⅛	Consolidated Oil Corp.	(sh)	14,218,835	N.P.	....	.....	..	..	..	..	9	4
15	4⅞	103,000	13¼	12¼	14	Continental Oil of Delaware	(sh)	4,738,593	$5	....	12-15-27	30½	7¾	12	5	9⅝	3⅝
35	13¾	52,200	35	25⅝	34	General American Transportation		751,638	N.P.	25cQ	1- 2-33	111⅞	53⅛	73⅛	28	35⅝	9½
16¾	4⅝	19,800	15¾	13⅝	15¾	General Asphalt	(sh)	413,333	$10	....	6-15-32	71½	22⅜	47	9⅝	15½	4¾
29⅜	8¼	19,500	26¼	22½	27	Houston Oil		$24,968,600	$100	....	10-17-30	116⅞	29¼	68½	15⅝	28¼	8⅝
3⅛	1⅛	1,300	3⅛	2¾	..	Indian Refining		$12,564,070	$10	....	10- 1-30	17	2	4⅝	1⅛	2⅜	1
2¾	⅝	5,100	2¼	1¾	2⅝	Louisiana Oil Refining	(sh)	1,309,069	N.P.	..	.....	12	3½	4½	1	2¼	½
2	½	500	2	1¼	1⅞	Maracaibo Oil	(sh)	330,000	N.P.	....	.....	10⅜	1⅜	3¾	½	1½	⅜
11⅜	3¾	33,200	10½	9½	11	Mid-Continent Petroleum	(sh)	1,857,912	N.P.	....	2-16-31	32	11	16¾	5	8⅞	3¾
22	4	18,400	17⅜	13½	22	National Supply of Delaware	(sh)	390,879	$50	....	5-15-31	124¾	60	70¼	5	13	3½
13⅜	4¾	66,800	11⅜	10⅜	12¾	Ohio Oil	(sh)	6,562,005	N.P.	....	12-15-32	32	16	19½	5⅛	11	5
12½	12	No sales ..	..	..	..	Pan American P. & T.	(sh)	3,416,082	$5	....	3-15-33	46½	42	35½	20	14	6
1¾	⅜	1,000	1⅝	1⅜	1½	Panhandle P. & R.	(sh)	198,770	N.P.	....	.....	12¾	1¾	4¼	⅝	1¼	⅛
14½	4¾	88,800	13¼	12	14	Phillips Petroleum	(sh)	4,156,908	N.P.	....	1- 2-31	44⅝	11½	16⅝	4	8½	2
1¼	¼	31,300	1¼	⅞	1⅛	Pierce Oil Corp.		$29,622,831	$25	....	.....	2½	½	1½	¼	⅝	¼
1¾	⅝	15,300	1½	1⅜	1⅝	Pierce Petroleum	(sh)	2,500,000	N.P.	...	2-16-31	7⅛	1⅛	3⅝	½	1⅜	½
17	6¾	68,000	14⅜	12	16½	Plymouth Oil Co.	(sh)	1,050,000	$5	75cA	.....	..	..	..	..	12½	8½
9½	5⅝	100	9½	9½	..	Prairie Oil & Gas		$61,035,800	$25	....	3-31-31	54	11¼	20⅜	4⅛	9½	3½
16¼	7	200	13½	13¼	16¼	Prairie Pipe Line ...		$101,250,000	$25	....	6-30-31	60	16⅝	26½	5⅞	12¼	5½
2	¼	6,100	1¾	1¼	1¾	Producers & Refiners		$37,438,950	$50	..	9-15-23	11⅞	1	6	1	1⅝	⅛
9	3	230	9	8½	..	Producers & Refiners pfd.		$2,845,350	$50	....	5- 4-25	40	11½	16	3	9¾	1
8⅝	2½	96,600	8⅝	7	8⅛	Pure Oil		$75,959,250	$25	....	9- 1-30	27¼	7⅝	11⅞	3¼	6½	2⅞
1⅝	¼	31,700	1⅝	1	1⅝	Richfield Oil (new)		$52,410,875	N.P.	....	.....	9⅝	4⅛	6⅝	⅝	1⅝	¼
27	17⅝	4,700	24¾	23⅝	26⅜	Royal Dutch N. Y.	(sh)	611,303	....	80½ct†	8- 5-32	56½	36⅞	42⅝	13	23⅝	12⅛
33½	15	26,300	31⅝	29¼	31½	Seaboard Oil of Delaware	(sh)	1,204,460	$4	15cQ	6-15-33	37	9¾	20¾	5½	20⅝	6⅝
18	11¼	50	15½	15½	18	Shell Transport & Trading Co.		£23,985,000	£1	53c†	7-22-32	48⅜	26	34	5	16⅜	8
7⅞	4	35,700	7⅜	6½	7⅝	Shell Union Oil	(sh)	13,066,497	N.P.	....	6-30-30	25½	5¼	10¼	2½	8¾	2½
49⅛	28½	1,000	47	45	47½	Shell Union Oil pfd.	(sh)	400,000	$100	....	7- 1-31	106¼	55	78	15	65¼	18
11⅝	4⅞	3,800	9¾	9	10⅞	Simms Petroleum	(sh)	600,000	$20	25cQ	1-16-32	37	5⅝	11	3½	7½	3¼
9	3	6,700	7	6⅛	8⅞	Skelly Oil		$27,441,250	$25	....	12-15-30	12	10⅛	12⅞	2	5⅜	2½
33½	22	700	33½	33	..	Skelly Oil pfd.	(sh)	119,800	$100	....	5- 1-31	99¾	42	62	10	33½	12
11⅜	6	105,900	10⅜	9¾	10⅜	Socony-Vacuum		$792,711,738	$25	....	3-15-33	106⅜	98	106	87⅛	12⅛	5⅛
101	92½	600	99¾	99	..	Standard Oil Export pfd.	(sh)	764,885	$100	$2.50SA.	12-31-32	..	..	21	8¾	100½	81
34½	19½	68,400	32¼	30¼	33	Standard Oil of California	(sh)	13,102,900	N.P.	25cQ	6-15-33	75	42½	51¾	23½	31⅞	15⅛
26¼	12¾	800	19	16	25¼	Standard Oil of Kansas		$8,000,000	$25	....	3-16-31	49	14⅜	19	7¾	16½	7
37⅜	22¾	106,800	35¾	33½	36	Standard Oil of New Jersey		$637,961,700	$25	50cSA	6-15-33	84⅞	32½	52½	26	37⅜	19⅞
44½	35	1,600	41¾	40⅛	43¼	Sun Oil	(sh)	1,531,422	N.P.	25cQ	6-15-33	70	30	45¼	26¾	39⅞	24¾
3¼	⅜	32,800	3½	2½	2⅞	Superior Oil Corp.	(sh)	776,979	N.P.	....	12-20-30	9⅜	⅝	1⅜	¼	2	¼
23	10¾	93,700	19⅝	17⅞	22⅛	The Texas Corporation		$246,204,900	$25	25cQ	4- 1-33	60½	28¼	36¼	9⅞	18¼	9¼
6½	1⅜	30,300	5¼	3⅝	28½	Texas Pacific Coal & Oil Co.		$9,304,890	$10	....	12-31-29	14½	4	6½	1⅞	4	1½
15½	9¼	400	13⅛	11¾	15½	Tide Water Oil	(sh)	2,190,323	N.P.	....	12-31-32	31	13	18	9⅞	10	5
60	45	800	60	55½	..	Tide Water Oil pfd.	(sh)	199,446	N.P.	....	2-15-33	94⅞	71	83	30	62	30
7⅞	3⅛	49,400	6¼	5½	7½	Tide Water Associated	(sh)	5,611,100	N.P.	....	2-16-31	17⅝	5⅞	9	2⅛	5⅝	2
44⅛	23½	2,500	38¼	36	41	Tide Water Associated pfd.		$73,284,500	....	....	1- 1-33	89¾	55	68	20½	60	20
17	8½	36,800	15	13½	16⅜	Union Oil of California		$109,651,750	$25	25cQ	5-10-33	50	10⅛	26⅝	11	15⅜	8
22½	10½	2,300	18¼	16½	21¼	Union Tank Car	(sh)	1,254,048	N.P.	30cQ	6- 1-33	38½	23	25½	16	19¼	11⅝
3⅝	⅝	5,100	2⅝	2	3	Warner-Quinlan	(sh)	632,948	N.P.	....	7- 1-30	27	4¼	7⅜	⅜	2¼	½
4⅞	2	8,200	4½	3⅞	4⅝	Wilcox Oil & Gas	(sh)	428,967	$5	...	5-10-28	21	6½	9⅝	2¾	8¾	2¾

*Ex-dividend. †Interim dividend for 1931. §Payable in 5% convertible preferred stock. A—Paid this year; no regular rate.

In comparing highs and lows for the several years in the three tables, it will be necessary to take into consideration cases where there have been stock split-ups.

Production, Distribution and Marketing Analyzed

(Continued from Page 68)

and Potter Counties and southern New York give a hint as to what may be expected from deeper drilling in other sections. It is my opinion that when Tioga and Potter gas structures are more fully developed and industry burns up more of the cheap oil on the market, that you will see natural gas displacing, to a large extent, manufactured gas in many of the larger cities in the East. Natural gas is now being supplied consumers in Binghampton, N. Y., Gettysburg, Pa., and Washington, D. C. A number of cities in this country have been supplied a mixed gas. Los Angeles, Calif., used mixed gas until the large volume of natural gas compelled the displacement of the manufactured product. Buffalo, N. Y., and Louisville, Ky., have been using a mixed gas for years. Why should a consumer be compelled to use a manufactured gas of 530 B.t.u. heat value if he can secure a mixed gas of 800 B.t.u. for what he now pays for the lower heat value gas?

Mixed Gas

There is very little expense connected with the process of mixing manufactured or coke oven gas with natural gas, as compared to the cost of enriching coal or water gas with fuel oil. There are a number of gas mixing control systems on the market today, that have proved successful in automatically controlling the mixture of two gases to maintain a uniform B.t.u. heat content; whether it is the use of manufactured gas to supplement available supplies of natural gas during periods of peak demand, or the use of natural gas to enrich the manufactured product to furnish a higher standard heat value. One company in the Pittsburgh district is using a Thomas calorimeter control that maintains the B.t.u. of the mixed gas at whatever standard desired. Another company, supplying an industrial plant, is using the Smoot Engineering Corp. system of control, in which pressure is the controlling medium.

The usefulness of gas depends upon the amount of heating effect which can be obtained by its combustion. This fact, coupled with the fact that the cost of production of artificial gas is roughly proportional to the heat content of the gas manufactured, led to the legal adoption in England, in 1920, of the unit of measurement of gas service delivered to the public called the "therm," consisting of 100,000 British thermal units. Or, 1,000 feet of artificial gas, each foot of which contains 500 B.t.u., will contain 500,000 B.t.u., or 5 therms; or, 1,000 feet of natural gas, each foot of which contains 1,000 B.t.u., will contain 1,000,000 B.t.u., or 10 therms. The therm unit of measurement is the proper "yard stick" for measuring the true value of gas service delivered to the consumer, and should be the "yard stick" for all gas, especially mixed gas.

Gasification of Coal

A market battle for fuel energy is always going on among the competing fuels—oil, gas and coal. Oil has taken much domestic market from anthracite, and natural gas has made inroads on both anthracite and bituminous. Natural gas consumed in this country, on account of the efficiency in its use, is equivalent to about 70,000,000 tons of bituminous coal. As there is mined in an ordinary year about 500,000,000 tons of soft coal, and even though a large part of this tonnage is now used in by-product ovens, the coal and gas industry would have a large undertaking on its hands to attempt a "complete gasification of all soft coal." With this as the "goal," I believe that the coal and gas industry should combine, or at least co-operate, in furnishing this entire country a smokeless fuel. Bituminous coal should not be permitted to be burned in its raw state in our cities, as it results in a loss of by-products, which are more valuable than the coal itself; and, it is estimated that the soot laid down in our cities, through the burning of raw bituminous coal, causes an annual loss in this country of more than $500,000,000. It seems to me that with the recovery of the many by-products obtained in the gasification of coal, and through the saving from reduction of the smoke nuisance in the cities, the coal and gas industry would not only find it practical but profitable to have this energy produced at the mine. The sulphur, ash and sludge could be disposed of within the depleted mines. If this were accomplished the railroads would likely lose some tonnage; however, this would be partly compensated for by the greater distribution of coke for house heating and industrial consumption. The total consumption of energy in the United States in 1929 was equivalent to 1,000,000,000 tons of coal. Bituminous coal furnished approximately 50 per cent of this consumption of energy; oil, 21 per cent; natural gas, 7 per cent; and waterpower, anthracite and fire wood the remainder.

In 1918, government reports indicate, more than 50,000,000 tons of bituminous coal were coked in beehive ovens. The recoverable gas from this amount of coal, if coked in by-product ovens, would have been sufficient to meet the requirements of all the manufactured gas consumers in this country at that time—not to mention the 500,000 gallons of tar, the benzol and other by-products that could have been recovered. Beehive ovens are almost a thing of the past, the by-product ovens having displaced them.

No doubt there are many other operations where raw coal is used, that would show a fuel reduction and economy in operating costs, if gas or coke, or both, were used. "Conservation and efficiency" are the gas industry's watchwords.

The progress that has been made in the last few years, in the process of coking coal, leads one to the opinion that we may not be as far away as we think from "complete gasification of soft coal" and into the dawn of the "smokeless fuel."

Refiners Made Market Generous With Premiums

(Continued from Page 18)

cents for spot oil in the Ranger and Breckenridge districts, Texas. Independents in Wichita Falls district were offering 10 and 15 cents on premiums on open division orders and 15 to 30-cent premiums on 60 and 90-day contracts. Consolidated Pipe Line Co. (Producers & Refiners Corp.) paid 30 cents per barrel premium for 1,800 bbls. daily production of 39 to 40 gravity oil in the Mounds district in Oklahoma; Clayton Refining Co. paid 25 cents premium for Wilcox sand production in the Country Club district, Tulsa.

February 1, 1924, Empire Pipe Line Co. started paying 10 cents premium in Hewitt, Okla., and American Pipe Line Co. was offering 15 cents premium in Healdton, Okla. The British American Co. offered Roxana 65 cents premium for 100,000 bbls. of Tonkawa crude, but was turned down. It was reported the Ohio Oil Co. was offering 25 cents premium for oil, gravity not stated. February 2, Empire was paying 10 cents premium in Hewitt and 25 cents premium for high-gravity Okmulgee and Bristow crude. February 7, Transcontinental Oil Co. was paying 35 cents premium for high-grade Bristow oil (posted price for 40 gravity and over $2 per barrel). Atlantic offering 10 cents premium for Bird Creek crude in Oklahoma. February 13, Clayton Refining Co., Dallas, offered 25 cents premium for Hewitt, Okla., crude. It was reported Waite Phillips sold the British American Co. 250,000 bbls. at $2.80 per barrel delivered in Okmulgee and Tulsa. On March 28, 1924, Cosden Pipe Line Co. was paying 20 cents premium in the Wild Horse district, Osage County, Oklahoma.

Premiums Everywhere

On April 15, with posted prices as follows: Below 30, $1.25; 30-32.9, $1.45; 33-35.9, $1.75; 36-38.9, $2; 39 and above, $2.25, many companies were offering premiums: Cosden, 20 cents for Wilcox sand oil; Johnson Oil & Refining Co., 10 cents for all grades; Empire, 10 cents in Okmulgee and Bristow, all grades; Shaffer, 10 cents for 39 gravity and over; Waite Phillips, 5 cents for high-grade oil; Producers & Refiners cut off its premiums everywhere (it had been paying 25 and 35 cents); Clayton quit soliciting; Champlin and other Enid territory refiners paying $2.75, or 50-cent premium, for Garber and Billings crude; Marland, paying $2.40 per barrel for 42 gravity and over; Atlantic paying 10-cent premium, but not soliciting new oil; Peerless Refining Co., 10 cents premium in Greenwood County, Kansas; Paragon (Toledo, Ohio), 15 cents premium in Butler and Marion Counties, Kansas. Demand for crude was good and some of the big buyers were offering dry-hole money, or making loans, or supplying pipe and material, or making other attractive offers to offset the premium payers.

May 19, 1924, Johnson Oil & Refining Co. was reported to have discontinued premiums.

No further mention of premiums was made until October 1, 1924, when H. H. Cross & Co. was reported to have bought 50,000 bbls. of low gravity oil from Bristow district at 25 cents above market. Posted prices had fallen off and at the close of the year the price range was from 75 cents to $1.25, with 36 gravity crude bringing $1.25.

Bullish Market in 1925

In January, 1925, the average price of 36-gravity crude was $1.37 on a bullish market and toward the end of the month premium paying was becoming acute. Champlin began offering $1.60 for 42 gravity oil in Tonkawa. In February, during which 36 gravity oil averaged $1.87, Roxana offered 10 cents premium anywhere it could get connections. Shaffer and Tidal were reported to be offering advances of money to get connections. Galena Signal was offering 17½ cents premium in the Wortham Pool in East Central Texas. One-year contracts at 15 and 25 cents above the posted price were being offered in Oklahoma and North Texas for high-gravity oil. February 6, Bell Oil Co. bought 96,000 bbls. of 39 and 40 gravity oil from Bradley Oil Co., Burkburnett, at $2.50 per barrel, a 65-cent premium. It was reported Wichita Refining Co. offered South Vernon Oil Co. (Texas) $2.50 per barrel for Vernon district oil. February 9, Primrose Refining Co. paid G. C. Church $2.35 per barrel for 50,000 bbls. of oil.

On February 14 it was reported 15 to 50-cent premiums were being paid in Kansas, Oklahoma and North Central Texas, depending on the gravity of the oil. Companies reported paying premiums in Texas were American Refining Co., Wichita Falls; Bell Oil & Gas Co. (Grandfield, Okla.); Boardman Oil & Refining Co., Crystal Petroleum & Refining Co., Falls Refining Co., Griswold Refining Co., Iowa Park Producing & Refining Co., Megargel Refining Co., Miller Petroleum Co., Charles F. Noble Oil & Gas Co., Olney Refining Co., Orient Petroleum Co., Panhandle Refining Co., Primrose Refining Co., Sunshine State Refining Co., Swastika Oil & Refining Co., Texhoma Refining Co., Travis Refining Co., Waggoner Refining Co. and Wichita Refining Co., all of Texas, the premiums having been mostly 25 cents per barrel. On this report it was shown that 42,150 bbls. per day were being purchased by the above-named companies at premium prices.

Slump in August

In March, 1925, 25 cents premium was being paid by independents in Osage County, Oklahoma. In that month 36 gravity crude averaged $2 per barrel. Cosden, Marland and Pierce pipe lines were named as offering premiums. Posted prices remained stationary until July when 36 gravity oil averaged $2.14 per barrel caused by a scramble for new connections and increased premiums. In August premium-paying slumped, or was discontinued altogether, and the posted prices fell off, with 36 gravity oil dropping to $1.79 in September and remaining at that figure until February, 1926. In November, 1925, Simms Oil Co. was reported as offering 10 cents premium in Powell, and Atlantic Refining Co. as soliciting in Powell at the same premium price. On December 1, Simms Oil Co. offered a premium of 10 cents for oil below 40 gravity and 5 cents for oil above 40 gravity, in Texas. November 30, Cosden and Shaffer were offering 10 cents premium in the Deep Rock Pool west of Cushing, Okla.

On December 11, 1925, Consolidated Pipe Line Co. and the Cosden, Shaffer and Johnson companies were reported as offering 10 cents premium everywhere they bought. December 17, the premium prices began to increase and they reached 15 and 25 cents in some of the high gravity fields. Champlin on December 17 offered for Garber crude 42-42.9, $2.42; 43-43.9, $2.50; 44 and above, $2.58. These prices were 15 cents above the posted price. There was no premium paying in the Wichita Falls district in December, but on January 3 the Tidal Western was reported to be offering 25 cents premium on yearly contracts in the shallow pools.

Seminole Ended Premium Paying

In 1926 the market was bullish from February 1 until about September 1. The Seminole Pool came in the middle of 1926, and it "beared" the crude market. On November 21 a price drop began from which we have never recovered. Oklahoma City, East Texas, Conroe, etc., have kept us in the doldrums and there has been little premium paying. In June, 1927, the Amerada Petroleum Corp. was reported to have sold 700,000 bbls. of Seminole crude at 5 cents above the market to the Bell Oil & Gas Co. It was supposed the Bell company was acting as a broker for the Atlantic Refining Co.

On October 29, 1931, an unverified rumor came in that the Indian Refining Co. was seeking 2,000 bbls. per day of oil from the Oklahoma City Field at a 5-cent premium.

That ended the reports of premiums. Thereafter came the news that this and that outfit were selling under the market. Stories of hot oil, law-breaking, rumors of bribery and corruption, befouled the industrial air. Quite a change in the picture!

Kansas Fields

(Continued from Page 49)

cor. NW SE Section 16-21-3w (old well drilled deeper) total depth 3,405 feet, rigging. Sherman and others' No. 1 Krehbiel, NW cor. SE Section 27-21-3w, was abandoned at 1,070 feet.

Russell County

Billings and others' No. 1 Mernis, NW cor. NE Section 9-14-15w, made 144 bbls. from 3,049-90 feet.

Ellsworth County

Gypsy Oil Co.'s No. 1 Fervert, NE cor. Section 21-16-10w, made 421 bbls. from 3,345-61 feet.

Gulf Coast Fields

(Continued from Page 50)

sure of 1,400 pounds. The production is from a sand at 4,739-47 feet.

East Stratton Ridge

Amerada Petroleum Corp. and Rycade Oil Corp.'s No. 3 Seaburn, discovery well of the East Stratton Ridge Dome, completed several weeks ago flowing 58 bbls. of pipe line oil per hour through a half-inch choke from sand at 4,405-4,500 feet, has started making considerable water. Late in the week it was flowing 30 bbls. of fluid, 50 to 60 per cent water, through a five-sixteenths inch choke. It will be killed and plugged back approximately 20 feet in an effort to shut the water off.

DRAKE PARK ASSURED

TITUSVILLE, Pa., June 5.—The signature of Gov. Gifford Pinchot to an appropriation of $1,200, for two years, has assured completion of the Drake Memorial Park project, to which the American Petroleum Institute has already contributed $15,000. The total cost will exceed $70,000 and dedication will take place August 27, 1934. Col. Edwin L. Drake drilled the first oil well in this country on August 27, 1859.

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THE OIL AND GAS JOURNAL
Tulsa, Oklahoma.

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55,000-BBL. STORAGE TANKS
Have purchased Teapot Dome tanks with steel roofs, two swing lines, all top accessories; will move and erect on your grade at great saving in money and time; built new 1926. Wire, write or phone.
SONKEN-GALAMBA CORPORATION
64 North 2nd St. Kansas City, Kans.

25 K.W. and 40 K.W. Gas Engines, 220 volts, D.C. Two 100 K.W. Gas Engine Generator Sets, 220 volts, D.C. 7x6 Ingersoll-Rand ER-1 Air Compressor. Six-inch Oster Pipe Threading Machine. Also, large stock of lathes, pipe machines, milling machines, etc. Send for our list. Terms to suit.
CINCINNATI MACHINERY & SUPPLY CO.
26 West 2nd St. Cincinnati, Ohio.

FOR SALE CHEAP
One Super D Fort Worth Spudder with string tools and eighty HP Climax motor. All in good condition. O. W. Ellison, Box 348, Abilene, Tex.

55,000-BARREL STORAGE TANK
Immediate delivery, 10—55,000-barrel steel storage tanks, will sell one or more, located Burkburnett, Texas., or will cut down and re-erect on your grade with new steel roofs at great saving. Also have purchased 10 steel roof tanks 55,000-barrel Teapot Dome line, built new in 1926. All tanks strictly guaranteed. Wire, phone or write
SONKEN-GALAMBA CORPORATION
64 North 2nd St. Kansas City, Kans.

Equipment Wanted

WE are in the market for 20 miles of 4-inch used line pipe T.&C. Send full particulars stating condition, price, etc. Address Box F-660, The Oil and Gas Journal, Tulsa, Okla.

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YOUNG LADY, 10 years land, title, oil office management experience. Any location considered. Address Box F-661, The Oil and Gas Journal, Tulsa, Okla.

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SALESMEN and dealers to handle finest Kansas oil royalties; 1/32 and 1/48 interests; 5-acre units at $400 each. Drilling within 4 months. Quick sales. Good commissions. Tickner Investment Co., 408 Commonwealth Bldg., Pittsburgh, Pa.

Incorporations

CHARTERS—Delaware best, quickest, cheapest, most liberal. Free forms. Colonial Charter Co., Wilmington, Del.

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GINTER CHEMICAL LABORATORY
OIL - GAS - WATER
118 West Cameron
Tulsa

Royalties—Production

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W. E. Cook, Court Arcade, Tulsa, Okla.

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Philcade Building, Tulsa, Okla.

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Kansas—Oklahoma—Texas
Always handle the best.
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Kansas-Oklahoma City-Seminole.
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INVEST your savings in Producing Oil Royalty; I am selling 1/128 Deeded Royalty Interests under Producing Wells at $75 each. Address Guy J. Stumpff, Box 1478, Kilgore, Tex.

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ATTRACTIVE royalties Webb county; Leases, drilling areas priced right. W. J. Dobbs, 915 Tower Pet. Bldg., Dallas, Tex.

Royalties—Production

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Tulsa, Oklahoma.

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If you don't find what you need listed here, tell us what you want and we can likely supply it at prices that will interest you.

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